



EUROPEAN CENTRAL BANK

EUROSYSTEM

**BLUE BOOK**

AUGUST 2007

**PAYMENT AND  
SECURITIES  
SETTLEMENT  
SYSTEMS IN THE  
EUROPEAN UNION**

**VOLUME I**

**EURO AREA  
COUNTRIES**





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COUNTRIES

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In accordance with Community practice, countries are listed using the alphabetical order of the country names in the national languages.

In general, the systems described and figures provided in this edition of the Blue Book are as at end-2006, unless otherwise stated.





## INTRODUCTION

This report on “Payment and securities settlement systems in the European Union” is the fourth edition of what has become known as the “Blue Book”. The first edition was published in 1992 by the Committee of Governors of the Central Banks of the Member States of the European Economic Community as a description of the payment systems of the then 12 Member States of the European Community. The second edition was published by the European Monetary Institute in April 1996, and the third edition was produced by the European Central Bank (ECB) in June 2001. This fourth edition takes account of the fundamental changes in payment and securities settlement systems which have taken place in the period from 2001 to 2007.

The aim of the Blue Book is to provide a comprehensive description of the main payment and securities settlement systems in the Member States of the European Union (EU). These descriptions cover both the domestic and cross-border aspects of those systems. The range of systems covered is not exhaustive, and the selection of these systems is not intended to indicate their relative importance.

The ECB, like any other central bank in the world, has a direct interest in the prudent design and management of payment and settlement systems within its currency area. The smooth functioning of these systems – particularly those that process very large amounts – is of paramount importance for the stability of the financial system and is essential for the effective implementation of the ECB’s single monetary policy. Furthermore, in the field of retail payment systems and instruments, the Eurosystem seeks to foster efficiency and to reduce the potential risks associated with such systems.

It can be expected that the rapid changes seen in recent years in payment instruments and in payment and securities settlement infrastructure will continue in the future. The expected adoption of the euro by further Member States in the coming years, the establishment of the Single Euro Payments Area (SEPA), new legal

initiatives such as the forthcoming Payment Services Directive and the expected further consolidation of the post-trading infrastructure for securities will all play a prominent role in this respect. The Eurosystem will continue to report on these developments in future editions of the Blue Book, which has proved to be a helpful tool for central banks, market practitioners, academics and the public in general.

### STRUCTURE OF THE BLUE BOOK

Following the entry into the EU of the former accession countries (with Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia acceding on 1 May 2004, and Bulgaria and Romania joining the EU on 1 January 2007), a separate ECB report on “Payment and securities settlement systems in accession countries”, as was published in August 2002, is no longer required. This edition of the Blue Book contains a chapter on the euro area and country chapters for all 27 EU Member States. For practical reasons, this Blue Book has been split into two volumes.

Volume 1 contains the euro area chapter and country chapters for all euro area countries, while the country chapters for the non-euro area countries are published in Volume 2. The euro area chapter describes aspects and features of payment and securities settlement systems which are common to, or relevant to, the Eurosystem as a whole. This chapter also describes the common legal and regulatory framework, focusing, in particular, on the role of the European Central Bank and the Eurosystem. The euro area chapter has been substantially extended by comparison with the previous edition of the Blue Book. This reflects, in particular, the integration and consolidation observed in payment and securities settlement systems in the euro area. The euro area chapter also reports on the SEPA project, as well as on new pan-European infrastructures such as TARGET2 in the field of large-value payments and the Euro Banking Association’s STEP2

system in the field of retail payments. The design and functioning of the Continuous Linked Settlement system, as a global infrastructure for the settlement of FX trades, is also described in detail.

Blue Book Addendum, which included 2005 data, was published in December 2006.

The country chapters deal with individual domestic features which are not common to the Eurosystem. This reflects the fact that, both for historical reasons and on account of differences in the legal, regulatory and institutional environments in the various countries, payment systems differ from country to country in terms of their type and structure. The above-mentioned developments (e.g. the SEPA and TARGET2) also have a bearing on existing national infrastructures. Consequently, the country chapters also contain a considerable amount of new information by comparison with the previous edition of the Blue Book.

In order to allow a direct comparison of the various payment systems, the euro area chapter and all the individual country chapters have a similar structure. Each chapter is divided into four sections: the first provides an overview of those institutional aspects which have an impact on payment systems and briefly describes the major parties involved; the second deals with the payment media used by non-banks and with recent developments in the area of retail payments; the third focuses on interbank transfer and settlement systems; and the fourth describes the various systems for the trading, clearing and settlement of securities.

A list of general acronyms is provided at the front of each volume, and each country chapter includes a list of acronyms specific to that country. Annexes at the end of each volume contain both a glossary of terms and a list of the members of the editorial group responsible for the coordination of the volume in question.

Finally, by contrast with previous editions of the Blue Book, statistical data are not provided in this publication. Instead, the relevant statistical information is released on an annual basis in the “Blue Book Addenda”. The last

## GENERAL TERMS AND ACRONYMS

### Currencies

€ or EUR	euro
BGN	Bulgarian lev
CZK	Czech koruna
DKK	Danish krone
EEK	Estonian kroon
CYP	Cyprus pound
LVL	Latvian lats
LTL	Lithuanian litas
HUF	Hungarian forint
MTL	Maltese lira
PLN	Polish zloty
RON	Romanian leu
SKK	Slovak koruna
SEK	Swedish krona
GBP	pound sterling

### Others

ACH	automated clearing house
ASI	ancillary systems interface of TARGET2
ATM	automated teller machine
BAS2	Business Administration System
BIC	Bank Identifier Code
BIS	Bank for International Settlements
CCB	correspondent central bank
CCBM	correspondent central banking model
CCP	central counterparty
CDs	certificates of deposit
CEPS	common electronic purse specifications
CESAME group	Clearing and Settlement Advisory and Monitoring Expert group
CESR	Committee of European Securities Regulators
CET	Central European Time
CLS	Continuous Linked Settlement; foreign exchange PvP system
COGEPS	Contact Group on Euro Payments Strategy
COGESI	Contact Group on Euro Securities Issues
CP	commercial paper
CPSS	Committee on Payment and Settlement Systems
CSD	central securities depository
CSM	clearing and settlement mechanism
DNS	designated-time net settlement
DvD	delivery versus delivery
DvP	delivery versus payment
EACH	European Association of Central Counterparty Clearing Houses
EBA	Euro Banking Association
ECB	European Central Bank



ECBS	European Committee for Banking Standards
ECN	electronic communication network
ECSDA	European Central Securities Depositories Association
EEA	European Economic Area
EFTPOS	electronic funds transfer at point of sale
ELMI	electronic money institution
EMI	European Monetary Institute
EMSSO	Electronic Money System Security Objectives
EMU	Economic and Monetary Union
EMV	standard for integrated circuit cards established by Europay, MasterCard and Visa
EPC	European Payments Council
EPM	ECB payment mechanism; TARGET component of the ECB
EPSS	European Payment Systems Services SA
ERP	Euro Retail Payment
ESCB	European System of Central Banks
ESSP	Euro Settlement Service Provider
ETF	exchange-traded fund
EU	European Union
EURO1	euro system of the EBA Clearing Company; EU-wide LVPS
Euroclear System	ICSD created in 1968 by the Morgan Guaranty Trust Company of New York
Eurogiro	cooperative initiative between banks and postal organisations to provide a network for cross-border payments
EuroMTS	electronic bond trading platform for European benchmark bonds
Euronext	stock exchange created by the merger of the Amsterdam, Brussels, Paris and Lisbon stock exchanges
FAFO	first available, first out
FESCO	Forum of European Securities Commissions
FESE	Federation of European Securities Exchanges
FIFO	first in, first out
FIN	store and forward messaging service for financial institutions on the SWIFT network
FIN Copy	function of the SWIFT network whereby instructions may be copied and, optionally, authorised by a third party before being released to the beneficiary
FOP	free of payment
FRA	forward rate agreement
FX	foreign exchange
GAAP	US Generally Accepted Accounting Principles
GDP	gross domestic product
GMT	Greenwich Mean Time
GNP	gross national product
HCB	home central bank
HICP	Harmonised Index of Consumer Prices

IASC	International Accounting Standards Committee
IBAN	International Bank Account Number
ICM	Information and Control Module of TARGET2
ICMA	International Capital Market Association
ICSD	international central securities depository
IFTS	interbank funds transfer system
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IP	Internet Protocol
ISDN	integrated services digital network
ISIN	International Securities Identification Number
ISMA	International Securities Markets Association
LVPS	large-value payment system
MiFID	Directive 2004/39/EC on markets in financial instruments
MoU	memorandum of understanding
M-PEDD	Multi-purpose Pan-European Direct Debit
NCB	national central bank
NCSD	Nordic Central Securities Depository
NDF	non-deliverable forward
OECD	Organisation for Economic Co-operation and Development
OTC	over the counter
PCI DSS	payment card industry data security standard
PE-ACH	pan-European automated clearing house
PIN	personal identification number
PKI	public key infrastructure
POS	point of sale
PvP	payment versus payment
repo	repurchase agreement
RTGS	real-time gross settlement
SCF	SEPA cards framework
SEPA	Single Euro Payments Area
SET	secure electronic transaction
SFD	Settlement Finality Directive
SIPN	secure IP network
SIPS	systemically important payment system
SSP	Single Shared Platform of TARGET2
SSS	securities settlement system
STEP1	low-value payments solution operating on the EURO1 platform
STEP2	retail clearing system of the EBA Clearing Company
STP	straight-through processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication
SWIFTNet FIN	store and forward messaging service for financial institutions on the new SWIFTNet platform
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system

TARGET2	second generation of the TARGET system
TCP/IP	Transmission Control Protocol/Internet Protocol
TfT	trade for trade
TIPANET	Transferts Interbancaires de Paiements Automatisés
Treaty	Treaty establishing the European Community
TRN	transaction reference number
VAT	value added tax
WAP	Wireless Application Protocol
XML	Extensible Markup Language



# EURO AREA

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## INTRODUCTION

Payment and securities settlement systems in the EU were originally created with the aim of meeting domestic requirements. They were rather diverse in nature and not necessarily suited to the needs of a single currency area, where an infrastructure is needed which enables the quick and smooth flow of payments and securities at low cost in the whole area. Against this background, the financial infrastructure in the EU has undergone rapid changes, both in the run-up to and following the introduction of the euro. The launch of the euro and developments in technology have led to an overhaul and reshaping of the infrastructure for effecting payments and for the trading, clearing and settlement of securities. In addition, the advent of the single currency has also accelerated efforts to harmonise and consolidate payment and securities settlement systems.

Some payment and securities settlement systems are common to, or relevant for, all of the EU Member States which have adopted the euro as their currency. The aim of this chapter on the euro area is to describe these systems and to depict the legal and regulatory environment in which they operate. Emphasis has been placed on the role of the Eurosystem, which comprises the European Central Bank and the NCBs of the euro area. Last, but not least, the chapter on the euro area also endeavours to describe aspects and features of payment and securities settlement systems which are common to all EU Member States. The reason for this is that, with regard to the legal and banking environment in which payment and securities settlement systems operate, the EU Member States which have not yet adopted the euro share a great deal with those which have adopted the euro.

The reshaping of the infrastructure and accelerated efforts to harmonise and consolidate payment and securities settlement systems have been particularly prevalent in large-value payment systems. The creation of the TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system established

an EU-wide RTGS system which is used for the settlement of central bank operations, cross-border and domestic interbank transfers, and other large-value euro payments. TARGET is an essential vehicle for the implementation of the monetary policy of the Eurosystem and has helped to create a single money market within the euro area. In order to better meet user needs, the Eurosystem is currently developing the next generation of its TARGET system (TARGET2). In TARGET2, the decentralised structure of the current TARGET system will be replaced by a single technical platform, the “Single Shared Platform” (SSP).

The most important privately owned and operated EU-wide payment system in the large-value segment is the EURO1 system of the Euro Banking Association (EBA). EURO1 processes both interbank payments and commercial payments.

Another system that settles large-value transactions is the Continuous Linked Settlement (CLS) system, which started operations in 2002. However, CLS settles foreign exchange transactions. This is done on a payment-versus-payment (PvP) basis in the books of a privately owned single-purpose bank (CLS Bank).

In the field of retail payment systems, the only systems which cover the whole of the euro area and which are open to all banks are the EBA’s STEP1 and STEP2 arrangements (see Section 3.4).

Correspondent banking arrangements represent another important channel of payment flows for both large-value and retail payments, although these are significantly less important than payment systems such as TARGET. It has generally been noted that the former role of correspondent banking as one of the main ways of making cross-border payments has diminished in the euro area since the launch of the euro. However, correspondent banking in euro continues to be of significance, with banks both within and outside the euro area, complementing

the use of cross-border payment systems in euro.

In the area of securities, the introduction of the euro has eliminated currency segmentation, which was one of the main reasons for the fragmentation of listing, trading and settlement in the countries of the euro area. The increased homogeneity of the securities markets within the euro area has encouraged investors to regard the euro area securities markets as a single entity. Trading, clearing and settlement institutions are trying to respond to this change in the market by increasing their cross-border operations. Moreover, an integrated euro area-wide money market has emerged, and the need, in some cases, to collateralise money market transactions has provided an incentive for the cross-border use of securities in the euro area. Another factor pushing in the same direction was the requirement for all collateral eligible for the monetary policy operations of the central banks of the euro area to be usable on an equal basis by all monetary policy counterparties. As no suitable facilities for the cross-border transfer of securities existed at the beginning of Monetary Union, the central banks set up the correspondent central banking model (CCBM). In the CCBM, central banks act as correspondents for each other, thus enabling the cross-border transfer of securities used for the Eurosystem's monetary policy operations and the provision of intraday credit in TARGET. As there is no comprehensive market alternative to the CCBM service, which was designed as an interim arrangement in the absence of a market solution covering the whole of the euro area, the ECB has started an analysis of possible paths for the evolution of the operational framework for collateral management in the Eurosystem.

In response to the increasing need for cross-border transfers in euro, including for commercial purposes, SSSs within the EU have provided facilities for the cross-border transfer of securities, i.e. links between SSSs.

In response to the demands of the securities markets for effective economies of scale and

scope, the securities settlement industry is also in the process of consolidating its cross-border activities. The consolidation process is affecting trading, clearing and settlement structures.

However, these initiatives are not fulfilling market participants' need for a truly integrated securities market infrastructure in Europe. Consequently, the Eurosystem is conducting analysis regarding the implementation, in coordination with market participants, of a single securities settlement facility to settle all securities transactions in Europe. This platform would be developed and operated by the Eurosystem and would be called TARGET2-Securities. It would be implemented in the coming years and would provide one single securities transaction settlement function for Europe.



## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL BACKGROUND

Most of the provisions of the Treaty establishing the European Community (the Treaty) which relate to Monetary Union, as well as most of the provisions of the Statute of the European System of Central Banks and of the European Central Bank (the Statute of the ESCB), apply only to EU Member States which have adopted the euro and/or their central banks and to the European Central Bank. In order to clarify which central banks are meant in which context, the name “Eurosystème” was coined at the beginning of Stage Three of Economic and Monetary Union (EMU). The Eurosystème comprises the ECB and the NCBs of those EU Member States which have adopted the euro. The decision-making bodies of the Eurosystème are the Governing Council and the Executive Board of the ECB. The NCBs of those EU Member States which are not yet participating in Monetary Union continue to conduct an independent monetary policy and are not part of the Eurosystème. When reference is made to the ECB and the central banks of all EU Member States, the more general term “European System of Central Banks” (ESCB) is used. The third decision-making body of the ECB, the General Council, comes into play when matters relating to the ESCB are involved. It ensures an institutional link between the Eurosystème and the NCBs of the non-euro area countries. Consequently, the General Council comprises representatives from the 13 euro area countries and the 14 non-euro area countries of the European Union, as well as the President and Vice President of the ECB.

One of the basic tasks of the Eurosystème is to promote the smooth functioning of payment systems. The relevant provisions are enshrined in the Treaty and the Statute of the ESCB. The Statute of the ESCB is annexed to the Treaty as a protocol and thus forms an integral part of the Treaty.

The following legal provisions of the Treaty and the Statute of the ESCB are of particular importance with regard to payment and settlement systems:

- Article 105(2) of the Treaty (reiterated in Article 3.1 of the Statute of the ESCB), which defines as a basic task of the Eurosystème the promotion of the smooth operation of payment systems; and
- Article 22 of the Statute of the ESCB, which states that the ECB and NCBs may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the Community and with other countries. Such ECB regulations are directly applicable in the Member States which have adopted the euro. So far, the ECB has not yet issued a regulation on the basis of Article 22.

The Treaty assigns to the ECB the regulatory powers to adopt any legal acts which are necessary to implement the basic tasks assigned to the Eurosystème. A distinction can be made between two different kinds of ECB legislation. First, there are legal acts intended to produce external effects (i.e. the addressees can be parties other than the NCBs). These legal acts are ECB regulations, decisions, recommendations and opinions. Second, there are legal acts addressed to the ECB and NCBs of the Eurosystème, which take the form of ECB guidelines, ECB instructions and internal ECB decisions.

The Council of the European Union and the European Parliament are also empowered by the Treaty to adopt legal instruments. These instruments, which are applicable in all Member States, include rules relating to the banking industry and the provision of financial services. Thus, they also affect the framework for payment and securities settlement systems. The main legal instruments used by the Council and the European Parliament are directives, which must be implemented at the national level. These are used to harmonise existing rules at

the national level or to establish new legislation where national rules do not exist but are deemed necessary. Some of the main directives and regulations which have an impact on payment and securities settlement systems are described below.

#### *The Cross-Border Credit Transfers Directive*

Directive 97/5/EC of 27 January 1997 on cross-border credit transfers is concerned with enabling individuals and businesses to make credit transfers in euro rapidly, reliably and cheaply from one part of the European Union to another. The Directive only applies to cross-border credit transfers up to a value of €50,000. It lays down minimum requirements needed to ensure an adequate level of customer information both before and after the execution of a cross-border credit transfer, and it sets forth minimum execution requirements. In this respect, it provides that:

- customers must be given, in advance, prices which they can understand clearly for any type of credit transfer;
- a transfer should be credited to the beneficiary's account within a clearly defined timescale (not exceeding five banking business days);
- transfers for which the originator pays all the costs ("OUR" mode) will be the rule, unless otherwise stipulated. An intermediary or receiving bank may not charge any further fees, particularly to the beneficiary; and
- when a transfer goes astray, a money-back guarantee for up to €12,500 is provided.

The Cross-Border Credit Transfers Directive has assisted the ECB in its task of promoting efficient cross-border payments in Stage Three of EMU. Owing to recent legislative changes, Directive 97/5/EC will be repealed at the end of the transposition period of the prospective Payment Services Directive (scheduled for 1 November 2009).

#### *The Settlement Finality Directive*

Directive 98/26/EC of 19 May 1998 on settlement finality in payment and securities settlement systems (the Settlement Finality Directive; SFD) has harmonised the laws of the EU Member States by ensuring that the operations of payment and settlement systems are not stopped by the bankruptcy of a participant. Thus, the SFD provides that netting and transfer orders entered into a system prior to the opening of insolvency proceedings against a participant in that system are binding and enforceable against third parties. It further provides that the collateral posted to other participants in a system and to central banks is enforceable and can be realised in accordance with the terms of the relevant agreement, notwithstanding the opening of insolvency proceedings against the participant. It should be noted that the term "collateral" in the SFD has a broad meaning which encompasses all realisable assets, including credit claims. Rights and obligations of participants with regard to the system are subject to the law governing the system. Rights to collateral securities recorded in an account, registry or central securities depository are governed by the law of the Member State where this account, registry or central depository is located.

Against this background, the main achievements of the SFD are as follows: (i) it has eliminated the main legal risks to which payment and securities settlement systems are exposed; (ii) it ensures that the smooth functioning of a system cannot be compromised by the application of a foreign insolvency law in the event of the participation of a foreign entity; and (iii) it enhances the legal certainty of collateral (also to the benefit of the credit operations of the ESCB).

#### *The E-Money Directive*

Directive 2000/46/EC of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions is aimed at fostering the Single Market in financial services by introducing a minimum set of harmonised prudential rules

for electronic money issuance and by applying to electronic money institutions (ELMIs) the arrangements for the mutual recognition of home supervision provided for in Directive 2000/12/EC<sup>1</sup> of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions. This includes the safeguarding of the financial integrity and the operations of ELMIs by, on the one hand, ensuring the stability and soundness of ELMIs, and, on the other hand, ensuring that the failure of any individual ELMI does not result in a loss of confidence in this new means of payment. The E-Money Directive further creates a level playing-field for the issuance of electronic money by both traditional credit institutions and ELMIs, thus ensuring that all issuers of electronic money are subject to an appropriate form of prudential supervision. The amendment, introduced by Directive 2000/28/EC of 18 September 2000, to the definition of a credit institution in Directive 2000/12/EC obliges institutions that do not intend to enter into the full range of banking operations to issue electronic money in accordance with the fundamental rules governing all credit institutions. Such an amendment promotes the harmonious development of the issuance of electronic money throughout the Community and avoids any distortion of competition between electronic money issuers, including with regard to the application of monetary policy measures.

#### **The Regulation on cross-border payments in euro**

In 2001 the Commission issued Regulation (EC) No 2560/2001 on cross-border payments in euro, which established the principle of equal charges by an individual credit institution for a cross-border transaction and a domestic transaction in euro within the European Union. The equal charge rule has applied since 1 July 2002 for electronic payment transactions, such as bank card payments, and for withdrawals from cash machines, and since 1 July 2003 for credit transfers up to €12,500. On 1 January 2006 that amount was raised to €50,000. This Regulation is intended to remain in force after

the adoption of the prospective Payment Services Directive.

#### **The Collateral Directive<sup>2</sup>**

Collateral is an asset or third-party claim that is accepted by the collateral-taker to secure an obligation on the part of the collateral-provider vis-à-vis the collateral-taker.<sup>3</sup> Collateral is widely used in financial transactions, including in the EU repo market, the value of which is estimated to have exceeded €6.43 trillion at the end of 2006.<sup>4</sup> Collateral is also an important tool for reducing systemic risk in payment and securities settlement systems. The Collateral Directive introduces harmonisation of the legal rules regarding the provision of collateral. The aims of the Collateral Directive are: (i) the protection, validity and enforceability of the collateral agreement, which is to be executed in accordance with its terms also in the event of the opening of insolvency proceedings against a counterparty to the collateral agreement; (ii) the removal of the major obstacles to the (cross-border) use of collateral; (iii) the limitation of administrative burdens, formalities and cumbersome procedures; and (iv) the creation of a clear and simple legal framework.

The Directive applies to the parties to a financial collateral transaction with the aim of avoiding the erosion of the principle of the equality of creditors after the opening of insolvency proceedings (*paritas creditorum*). These parties belong to one of the following categories: public sector bodies, central banks and international financial institutions, supervised financial institutions, central counterparties, settlement agents and clearing houses. The material scope of application covers financial

1 This Directive includes the former First Banking Co-ordination Directive and the Second Banking Co-ordination Directive, which were essential in achieving the Single Market for banking services in the EU.

2 Directive 2002/47/EC of 6 June 2002 on financial collateral arrangements (OJ L 168, 27.6.2002, p. 43).

3 See also the definitions in Article 2(1)(a) to (c) of the Collateral Directive.

4 Source: ICMA repo market survey (<http://www.trax2.org/repos.asp> and press release ICMA/2007/15 of 28 February 2007).

collateral in the form of financial instruments<sup>5</sup> and cash. The Directive abolishes all formalities required to create and perfect collateral arrangements. If an enforcement event occurs, the realisation of the financial collateral will be possible by sale or appropriation (if agreed) of the financial instruments and by setting off the amount or applying it in discharge of the relevant financial obligation, without prior notice, court authorisation, public auction or a waiting period.<sup>6</sup>

The Directive requires the recognition of the right to reuse pledged collateral, if contractually agreed. The Directive provides for the continuing validity of collateral, even when insolvency proceedings are initiated against one of the parties to the transaction, and recognises close-out netting arrangements and certain typical risk control measures inherent in collateral, i.e. the substitution of assets or asset prices related to mark-to-market calculations. Finally, it extends the conflict of laws rule of the Settlement Finality Directive, i.e. applying the law of the place where the relevant account is maintained to all collateral in the form of book-entry securities. The Directive has greatly facilitated the cross-border use of collateral throughout the EU, as was concluded in the European Commission evaluation report on the Directive which was published on 20 December 2006.<sup>7</sup> Several proposals were made to account for developments in the financial markets, most notably a proposal to consider extending the scope of the Directive to the use of credit claims as collateral. The European Commission also proposed amending the conflict of laws regime in order to further specify the criteria for determining the location of an account.

#### *The Markets in Financial Instruments Directive*

On 21 April 2004 the Council of Ministers adopted Directive 2004/39/EC on markets in financial instruments (MiFID<sup>8</sup>), which replaced the previous Investment Services Directive. MiFID establishes, for the first time, a comprehensive regulatory framework governing the organised execution of investor transactions by exchanges, other trading systems and

investment firms. MiFID imposes an effective “best execution” obligation to ensure that investment firms execute client orders on the terms that are most favourable to the client. This obligation should apply to firms with contractual or agency obligations vis-à-vis clients. The European Commission delayed its implementation until 31 January 2007. Accordingly, firms and markets will adapt their structures and procedures in line with the new requirements by the end of 2007 and apply these rules as of 1 November 2007.<sup>9</sup>

This new Directive is relevant for clearing and settlement systems because it invites Member States: (i) to accord local regulated markets access to a central counterparty, clearing house and settlement system from another Member State; (ii) to accord investment firms from other countries access to a central counterparty, clearing and settlement systems in their territory; and (iii) to accord local investment firms access to a central counterparty, clearing house or settlement system of another Member State. Investment firms which wish to participate directly in other Member States’ settlement systems should comply with the relevant operational and commercial requirements for membership and the prudential measures to uphold the smooth and orderly functioning of the financial markets.

5 Financial instruments are defined as: “shares in companies and other securities equivalent to shares in companies and bonds and other forms of debt instruments if these are negotiable on the capital market, and any other securities which are normally dealt in and which give the right to acquire any such shares, bonds or other securities by subscription, purchase or exchange or which give rise to a cash settlement (excluding instruments of payment), including units in collective investment undertakings, money market instruments and claims relating to or rights in or in respect of any of the foregoing”; see the Collateral Directive, Article 2(1)(e).

6 Collateral Directive, Article 4.

7 Report from the Commission to the Council and the European Parliament entitled “Evaluation report on the Financial Collateral Arrangements Directive (2002/47/EC)”, COM(2006)833 final.

8 OJ L 145, 30.4.2004, p. 1.

9 Directive 2006/31/EC of the European Parliament and of the Council of 5 April 2006 amending Directive 2004/39/EC on markets in financial instruments, as regards certain deadlines (OJ L 114, 27.4.2006, p. 60).

### *The draft Payment Services Directive*

In December 2005 the Commission made a proposal for a directive on payment services in the Internal Market, which is intended to create a comprehensive set of rules for all payment services in the European Union. Following the efforts of the German Presidency, on 24 April 2007 the European Parliament adopted the proposal for the Payment Services Directive, for which the ECOFIN Council had already agreed a general approach at its meeting on 27 March 2007. The Payment Services Directive will be forwarded to the Council of the European Union for final adoption. The Member States should then transpose the Directive into national law as soon as possible, and by 1 November 2009 at the latest.

The ECB and the European Commission, in a joint communiqué on 24 April 2007, regarded the adoption of the Payment Services Directive by the European Parliament as a decisive step towards the realisation of the Single Euro Payments Area (SEPA). The Directive is expected to greatly facilitate the operational implementation of SEPA instruments by the banking industry, as well as their adoption by end-users, by harmonising the applicable legal framework. This will lay the foundations for a single “domestic” euro payments market. The Directive is expected to also underpin consumer protection and enhance competition and innovation by establishing an appropriate prudential framework for new entrants to the retail payments market. This should encourage technological progress and the realisation of new product opportunities, such as e-invoicing, which can provide major benefits to the wider economy.

With the proposal for the Payment Services Directive now adopted by the European Parliament, the ECB and the European Commission urge the banking industry and all other stakeholders to maintain their momentum and intensify preparations for the launch of the SEPA by 1 January 2008, and for its subsequent successful and timely implementation. The

ECB and the European Commission will continue to support these efforts.

### **1.2 THE ROLE OF THE EUROSISTEM**

The ECB and the national central banks of the Eurosystem have traditionally been involved in payment, clearing and settlement systems in many different ways: as participants in the systems; as operators of some systems themselves; as providers of central bank money as a settlement asset; as promoter of an efficient overall payment infrastructure; and as overseers. As such, they have gained expertise regarding the way in which payment and settlement systems work, and also regarding the risks involved. In general, the smooth functioning of payment and securities clearing and settlement systems is of particular concern to central banks for three main reasons: (i) a major malfunction in payment and securities clearing and settlement systems could undermine the stability of financial institutions and markets; (ii) the soundness and efficiency of payment and securities clearing and settlement systems and the security of payment instruments affect the confidence of users and, ultimately, public confidence in the currency; (iii) payment systems – and, given that all Eurosystem credit operations need to be fully collateralised, also securities settlement systems – represent essential vehicles for the implementation of monetary policy. In addition, the euro area infrastructure partly suffers from fragmentation, which results in inefficiencies and higher costs, especially for cross-border transactions. The Eurosystem’s activities consequently aim also to overcome the fragmentation problem in the euro area where this still exists. The integration process has started, but faces a number of barriers that cannot be fully removed by the private sector alone.

The payment systems policies of central banks are aimed at promoting the efficiency and soundness of payment systems. In order to achieve these policy objectives, the payment and settlement services offered by the private sector are overseen by central banks. (For

further details on the oversight of payment systems, see Section 1.2.1.) Central banks also offer settlement services themselves and sometimes assume an operational role in payment systems. For the Eurosystem, this dual role of regulator (“overseer”) and service provider is emphasised, in particular, in Article 22 of the Statute of the ESCB. In addition, the Eurosystem acts as a catalyst for change in the field of payment systems, with the aim of fostering the efficiency and integration of the overall payments infrastructure in the euro area. This approach is used, for example, in the development of a pan-European euro retail payments infrastructure. The Eurosystem supports market initiatives, such as the establishment of the SEPA and integration in the securities market and infrastructure.

The central banks’ payment systems oversight function and the prudential banking supervision function (sometimes also placed within central banks) share the objective of financial stability, i.e. they both aim to reduce the risk of financial crisis. However, while prudential supervision looks at institutions, oversight focuses primarily on systems. The Eurosystem considers close cooperation between payment systems overseers and banking supervisors to be essential. Consequently, EU payment systems overseers and banking supervisors have agreed on a memorandum of understanding (MoU). The MoU is aimed at promoting cooperation between payment systems overseers and banking supervisors in relation to large-value interbank funds transfer systems (IFTSS).

With regard to securities clearing and settlement systems, the Treaty contains no explicit reference to the role of the Eurosystem. Nevertheless, the interest of the Eurosystem goes beyond the limited perspective of a user of collateral in the context of its credit operations (i.e. liquidity-providing monetary policy operations and intraday credit). With its general responsibility for financial stability, the Eurosystem, like any central bank in the developed world, has a general interest in the smooth functioning of securities clearing and

settlement systems with a view to ensuring the smooth implementation of monetary policy and the smooth functioning of payment systems, given the close relationship between securities settlement and payment systems.

In pursuing the above-mentioned objectives, the Eurosystem also cooperates with other bodies and institutions which are active in the field of payment and securities settlement systems (see Section 1.2.4).

### 1.2.1 PAYMENT SYSTEMS OVERSIGHT

As part of their payment systems oversight function, central banks monitor developments in the field of payment and settlement systems in order to assess the nature and scale of the risks inherent in these systems and to ensure the transparency of the arrangements concerning payment instruments and services. Where necessary, they define principles and standards for the promotion of safe, sound and efficient payment and settlement systems. They analyse and assess the extent to which the systems comply with these principles and standards.

The oversight role of the Eurosystem – which is recognised in the Treaty (Article 105(2)) and the Statute of the ESCB (Articles 3 and 22) – covers both large-value and retail payment systems. Systems managed by the Eurosystem and privately operated payment systems are both subject to the same standards.

The Eurosystem clarified its payment systems oversight policy in a statement entitled “Role of the Eurosystem in payment systems oversight” which was published in June 2000. Accordingly, within the Eurosystem, oversight activities are performed in the manner set out below.

The Governing Council of the ECB formulates the common policy stance by determining the objectives and setting the standards for payment systems whose functioning may affect the implementation of monetary policy, systemic stability, the establishment of a level playing-field among market participants and the



efficiency of cross-border payments within the EU and with other countries.

In areas not specifically covered by the common oversight policy, policies defined at the NCB level apply within the framework of the general common policy stance defined at the Eurosystem level, in relation to which the Governing Council can always adopt initiatives where necessary. An appropriate level of coordination between the ECB and the NCBs of the Eurosystem is ensured for any proposed policy or action in the field of oversight which an individual NCB may wish to pursue at the national level.

The Eurosystem may also formulate a policy concerning the security of payment instruments in order to maintain user confidence. An example of this is the “Report on electronic money” published in August 1998, which was complemented in May 2003 with a report on “Electronic money system security objectives”.

In January 2001 the Governing Council of the ECB adopted the G10 report on “Core Principles for Systemically Important Payment Systems” as one of the standards the Eurosystem must apply when performing its oversight role. In June 2003 this was complemented by the adoption of a framework for retail payment systems.<sup>10</sup> Retail payment systems are divided into three categories: systemically important systems, prominently important systems and other systems.<sup>11</sup> With regard to security and operational reliability, the Governing Council of the ECB has approved “Business continuity oversight expectations for systemically important payment systems (SIPS)” (June 2006).

The ECB and the NCBs of the Eurosystem ensure consistency in the implementation of the oversight policy stance and, in particular, that standards are applied in the same way for all the payment systems concerned. To this end, these oversight activities are coordinated at the level

of the Eurosystem, through appropriate committees and working groups.

The cooperation between payment systems overseers and banking supervisors contributes to an overall strategy of risk reduction in the financial system. Cooperation between these authorities is necessary since the stability of the financial system may be affected by the risks borne by credit institutions arising from their participation in payment systems or from their provision of settlement services. In early 2001 the ECB and all NCBs, in their capacity as overseers of payment systems, together with the EU banking supervisory authorities, signed a memorandum of understanding setting out a framework for their cooperation. According to the MoU, overseers will endeavour to ensure that supervisors are made aware of the risks credit institutions run through their participation in payment systems or by being the operator/settlement agent of a payment system. In turn, supervisors will endeavour to ensure that overseers are made aware of the risks posed to the system they are overseeing by the participation of a credit institution and, where the case arises, by the fact that the operator/settlement agent of a payment system is engaged in other banking activities, insofar as these may have implications for its settlement activities. In addition, the banking supervisory authorities and the central banks of the EU agreed, in March 2003, on a memorandum of understanding on high-level principles of cooperation in crisis management situations. As monetary authorities and overseers of payment systems, and in their overall capacity as authorities responsible for contributing to the stability of the financial system as a whole, central banks are signatories to this MoU.

<sup>10</sup> “Oversight standards for euro retail payment systems”.

<sup>11</sup> Systemically important retail payment systems are expected to comply with all ten Core Principles, whereas prominently important retail payment systems must comply with Core Principles I (legal soundness), II (participants’ understanding of risks), VII (security and operational reliability), VIII (efficiency and practicality), IX (access) and X (governance). Other retail payment systems are subject to proprietary standards defined by the relevant overseers.

### 1.2.2 THE EUROSISTEM'S INTEREST IN THE AREA OF SECURITIES MARKET INFRASTRUCTURES

The securities market infrastructure comprises all the arrangements and technical facilities related to trading, clearing and settlement of securities and financial instruments.

The Eurosystem has a strong interest in the secure and efficient functioning of securities market infrastructures – and of securities clearing and settlement arrangements in particular – for several reasons: (i) it uses the securities infrastructure for the implementation of monetary policy and for intraday credit operations; (ii) it aims to ensure financial stability; and (iii) it promotes financial market integration.

#### *The efficient and secure execution of central bank credit operations*

Within the framework of Article 18 of the Statute of the ESCB, the Eurosystem, in selecting instruments and defining procedures for the conduct of the single monetary policy, and in seeking to ensure the smooth functioning of the TARGET system, has paid special attention to the settlement procedures of instruments eligible as collateral in its credit operations (i.e. liquidity-providing monetary policy operations and intraday credit).

The Eurosystem aims to protect itself from incurring losses in its credit operations. All Eurosystem liquidity-providing operations must be based on underlying assets. As a result, malfunctions or disturbances in the settlement process could affect the provision of liquidity. Since all central bank credit operations – including intraday credit used for payment systems purposes – must be fully collateralised, inefficiencies in the clearing and settlement process will also affect the provision of intraday liquidity in the TARGET system. In fact, TARGET would be blocked if securities were not delivered to the Eurosystem on time. Furthermore, securities clearing and settlement systems are important for payment systems, since, in general, most securities transactions also involve the settlement of funds. As a result,

banks include the payment flows stemming from securities settlement in their intraday liquidity management. If these funds are not delivered, or are not delivered on time, payment systems could become gridlocked. The link between securities settlement systems and payment systems has been further strengthened through the development of delivery-versus-payment (DvP) facilities.

The implementation of the single monetary policy and the provision of intraday credit to participants in payment systems called for the relevant securities settlement systems to be capable of ensuring: (i) reliable links between the Eurosystem and a broad range of counterparties; (ii) speedy, smooth and secure transactions; and (iii) secure and reliable procedures for the cross-border use of eligible assets (e.g. reliable links between SSSs).

In this respect, in order to protect the Eurosystem from losses due to any type of failure within an SSS, in 1998 the Eurosystem developed and endorsed nine standards to be met by EU SSSs used for Eurosystem credit operations.<sup>12</sup> These standards create the necessary framework for the mitigation of risks related to the settlement of credit operations and the safekeeping of collateral during these operations.

The Eurosystem has established a framework for checking compliance with the above-mentioned standards (“user assessments”), which is coordinated by the ECB. In this context, SSSs and links between SSSs have been assessed periodically, as well as on an ad hoc basis when needed. In 2005 the Governing Council of the ECB decided that relayed links may also be eligible for use in Eurosystem credit operations. The first assessment of such links is currently being undertaken and will be finalised later in 2007.

In order to ensure efficient and consistent execution of the user assessments, the

<sup>12</sup> “Standards for the use of EU securities settlement systems in ESCB credit operations”, EMI/ECB January 1998.

Eurosystem has developed specific assessment methodologies for the assessment of SSSs, links and relayed links. There are many common elements in these methodologies which apply to all assessments, but these also contain specific features in order to detect and mitigate specific risks that relate mainly to the legal and operational set-up of either systems, links or relayed links.

The final decision as to whether an SSS, a link or a relayed link can be considered eligible for Eurosystem credit operations is taken by the Governing Council of the ECB. Should an SSS not comply fully with the standards, the Eurosystem can issue recommendations to the operator of the system, with the implementation of these recommendations monitored by the relevant NCB(s). A list of eligible systems and links is continuously updated on the website of the ECB.

Moreover, most NCBs act as settlement banks for SSSs, and some have been entrusted also with the oversight of SSSs.

#### *The smooth functioning of payment systems and the stability of the financial sector*

The financial soundness of securities settlement arrangements is a prerequisite for the smooth functioning of payment systems to the extent that any disturbance affecting settlement in securities markets has the potential to spread to payment systems and to the financial sector in general. A major malfunction in a securities clearing and settlement system could undermine the stability of the financial markets and, ultimately, affect public confidence in the currency. Such systemic risks are particularly important as regards central counterparties, which manage and concentrate the credit risk of the market-places that they serve. The consequences of risk management failures would therefore be particularly serious. The Eurosystem follows closely any developments in the securities market infrastructure that could have a potential impact on financial stability.

#### *The promotion of financial market integration*

As trading, clearing and settlement are at the core of financial markets, inefficiencies in these processes have serious consequences. When trading, clearing and settlement are too costly or complex as a result of insufficient integration, financial transactions are discouraged, which will negatively affect the allocation of capital, risk-sharing across agents and economic growth. In other words, the integration of the securities infrastructure is a necessary condition for the integration of the financial market that it serves. Owing to its interest in financial market integration, the Eurosystem is involved in many activities, mainly in its capacity as catalyst, aimed at promoting the integration of its securities market infrastructure. It regularly meets market participants to discuss issues relevant for the integration of the securities market infrastructure. Furthermore, it contributes to the work of the European Commission aimed at eliminating barriers to efficient clearing and settlement.

More recently, the Eurosystem has taken initiatives by announcing in July 2006 its intention to evaluate opportunities to provide efficient settlement services for securities transactions in central bank money. This project – the TARGET2-Securities project – has given rise to a comprehensive feasibility study, on the basis of which the Eurosystem decided in March 2007 to go ahead with the next phase of the project, namely the definition of user requirements on the basis of market contributions. The final decision on the development phase of this project is expected by early 2008.

The implementation of this facility, which would be fully owned and operated by the Eurosystem, would allow the exploitation of synergies with the TARGET2 payment system, entail large cost savings for users and represent a major step towards the integration of securities settlement services in the Eurosystem.

### 1.2.3 OPERATIONAL ROLE OF THE EUROSYSYSTEM

One way for central banks to promote the safe and efficient functioning of payment systems is to operate their own payment systems. The main operational role of the Eurosystem lies in the provision of the TARGET system. TARGET is the real-time gross settlement system for the euro. It provides facilities for settlement in central bank money. TARGET is not run by the central banks of the Eurosystem alone. All central banks of the ESCB can be connected to TARGET, although in practice only some non-Eurosystem NCBs are connected to TARGET. A more detailed description of TARGET can be found in Section 3.1.

The ECB and NCBs also offer their settlement services to other payment and settlement systems, e.g. the balances of large-value net settlement systems are settled at the central banks.

Some NCBs also run retail payment systems and operate in-house SSSs. More detailed descriptions of the respective systems can be found in the relevant country chapters.

The ESCB is also operationally involved in the cross-border transfer of securities which can be used as collateral to obtain intraday credit from NCBs and for monetary policy operations. For this purpose, the correspondent central banking model was established in order to facilitate the cross-border use of collateral in the Eurosystem's monetary policy operations and the provision of intraday credit in TARGET. Within the CCBM the NCBs act as correspondents for each other and thereby enable counterparties to use all of their eligible assets to obtain credit from their NCBs. Counterparties to the monetary policy operations of the Eurosystem and participants in TARGET in the EU can only obtain credit from the central bank of the country in which they are established – their home central bank. However, through the CCBM, they can use collateral held in other countries. A more detailed description of the CCBM can be found in Section 4.3.1.

### 1.2.4 COOPERATION WITH OTHER INSTITUTIONS AND BODIES

In addition to defining principles, etc. on its own, the Eurosystem also actively cooperates with other bodies and institutions which are active in the area of payment and settlement systems.

First, there is the cooperation with the European Commission, which regularly participates in meetings with the central banks on issues related to payment and securities settlement. In turn, the central banks participate in meetings at the Commission, thus ensuring that cooperation is as close as possible (see also Section 1.3.1). Moreover, in accordance with Article 105(4) of the Treaty and Article 4 of the Statute of the ESCB, the ECB is consulted on any proposed Community act in its fields of competence. The ECB may submit opinions to the appropriate Community institutions on matters in its fields of competence.

The ECB and several NCBs (Nationale Bank van België/Banque Nationale de Belgique, Banque de France, Deutsche Bundesbank, Banca d'Italia, De Nederlandsche Bank, Sveriges Riksbank, Bank of England) participate in the Committee on Payment and Settlement Systems (CPSS) of the G10 central banks. The CPSS operates under the auspices of the BIS, which is based in Basel. The CPSS monitors and analyses developments in payment and securities settlement systems. Recently it analysed new developments in clearing and settlement arrangements for OTC derivatives, as well as interdependencies between the various payment and settlement infrastructures. Its reports on a variety of different issues have also often had a strong influence on practical developments worldwide. Furthermore, within the framework of the CPSS sub-group on foreign exchange (FX) settlement risk, the cooperative oversight of CLS is led by the Federal Reserve Bank of New York (for further information, visit the BIS website at [www.bis.org](http://www.bis.org)).

Another form of cooperation in respect of oversight exists at the level of the G10 central

banks. The ECB and several NCBs participate in the SWIFT Cooperative Oversight Group and the SWIFT Technical Oversight Group. Moreover, the ECB participates in the Executive Group of the SWIFT Cooperative Oversight Group.

The ECB and several NCBs (see above) have participated in a joint task force established by the CPSS and the International Organization of Securities Commissions (IOSCO) in the field of SSSs. The task force has already published reports on “Recommendations for securities settlement systems” and “Recommendations for central counterparties”, aimed at developing recommendations for the design, operation and oversight of SSSs and central counterparties. The purpose of these recommendations is to reduce systemic risk, increase efficiency and provide adequate safeguards for investors.

As a follow-up to these reports, the ESCB is working together with the Committee of European Securities Regulators (CESR) to define standards for the oversight of the clearing and settlement of securities.

Last, but not least, the Eurosystem regularly meets with market participants in order to maintain close contact with the market, to convey its ideas to the market and to obtain feedback from market participants on how the work of the Eurosystem in the area of payment and securities settlement systems is perceived. The two most prominent examples of this cooperation are the “Contact Group on Euro Payments Strategy” (COGEPS) and the “Contact Group on Euro Securities Issues” (COGESI).

### **1.3 THE ROLE OF OTHER PUBLIC AND PRIVATE SECTOR BODIES**

#### **1.3.1 THE EUROPEAN COMMISSION, THE COUNCIL OF THE EUROPEAN UNION AND THE EUROPEAN PARLIAMENT**

The promotion of the smooth operation of payment systems is based on Article 105(2) of the Treaty as one of the basic tasks of the Eurosystem. Under Article 56 of the Treaty, the

freedom to make payments is a fundamental freedom, with that Article stating that restrictions on payments between Member States and between Member States and third countries are prohibited. One of the tasks of the Commission is to strive for further harmonisation of the laws within the European Union, including those which have an impact on payment systems, by issuing directives which must be implemented in national law by the Member States. One of the principal aims is to create a single market with a level playing-field and equal opportunities throughout the EU. Consumer protection is another area in which the Commission is active. A recent example can be found in the field of cross-border retail payment systems, where the preparation of a Payment Services Directive is intended to complement the initiatives of the Eurosystem and to create incentives for the industry to improve the situation quickly. The Commission has also launched an initiative to explore ways in which fraud and counterfeiting in payment systems can be prevented.

Following the publication of the two Giovannini Reports, which identified obstacles to the integration of clearing and settlement systems and measures to be undertaken, the Commission published a communication in 2004 on its strategy and policy goals. In 2004 the Commission set up a Clearing and Settlement Advisory and Monitoring Expert group (the “CESAME” group) to assist it in the integration of EU securities clearing and settlement systems. The ECB participates in this group. In July 2006 the European Commission requested that the securities clearing and settlement industry come forward with a code of conduct for post-trading clearing and settlement services to enhance price transparency and increase competition in the post-trading sector. This Code of Conduct was published on 7 November 2006 and signed by the organisations to which it applies. It contains measures aimed at ensuring price transparency, access and interoperability, unbundling and accounting separation, and an independent monitoring process. At this stage the Code of Conduct only

applies to cash equities, but it may be extended to other areas over time. The Code does not cover prudential aspects. It was foreseen that implementation would take place in three phases: price transparency by the end of 2006, interoperability and access by the end of June 2007, and unbundling and accounting separation by 1 January 2008. A strict monitoring mechanism has been set up to ensure that all the measures are implemented properly and on time. In principle, the mechanism relies on external auditors who will report on the implementation of the signatories' commitments to an ad hoc Monitoring Group (MOG) composed of the Commission, the CESR and the ECB, and chaired by the Commission.

### 1.3.2 BANKING FEDERATIONS AND ASSOCIATIONS

Most banks in the EU are organised into national federations or associations in order to represent their interests as a group vis-à-vis other public and private institutions. The national federations and associations also cooperate at the European level in the European Association of Co-operative Banks (EACB), the European Savings Banks Group (ESBG) and the European Banking Federation (EBF). These European organisations act as platforms for exchanges of views, for reaching agreement on common business policies and for other matters which require a common understanding at the European level. Such activities take place both within the organisations and among the organisations and their bodies. In some countries the banking federations and associations play an important role in negotiating with third parties and agreeing on matters (including payment systems issues) on behalf of their members.

### 1.3.3 OTHER COOPERATION AND CONSULTATION ARRANGEMENTS

Market players have also organised themselves to specifically consider issues in the field of payment and securities clearing and settlement systems. These cooperation arrangements act as platforms to promote the interests of their members, to facilitate exchanges of views and to develop common standards and practices.

The most prominent fora in the payments market are the European Payments Council (see Section 2.2.2) and the Euro Banking Association (see Section 3.2.1).

The most significant organisations in the securities sphere are the European Central Securities Depositories Association (ECSDA), the European Association of Central Counterparty Clearing Houses (EACH) and the Federation of European Securities Exchanges (FESE).

## 1.3.4 SWIFT

### 1.3.4.1 SWIFT organisation

The Society for Worldwide Interbank Financial Telecommunication (SWIFT) is an industry-owned cooperative founded in 1973 by 239 banks from 15 countries. It was set up under Belgian law and is controlled by its member banks (including central banks) and other financial institutions. SWIFT supplies secure messaging services and interface software, contributes to the greater automation of financial transaction processes and provides a forum for financial institutions to address issues of common concern in the area of financial communications services. Over the years SWIFT has gradually expanded its business, starting in payments, moving into securities, and more recently extending to investment institutions and corporate organisations. By December 2006 more than 8,100 participating financial institutions and corporations from 207 countries were connected to the SWIFT network.

SWIFT has an Executive Board of up to 25 directors which is responsible for governing the company. The Board has six committees with decision-making powers subject to Board approval: Audit and Finance, Human Resources, Banking and Payments, Securities, Technology and Production, and Standards. In addition, Board task forces provide guidance and direction to the Executive Board on important business matters.



The international dimension of SWIFT's activities is reflected in the oversight arrangements which are set up. As SWIFT is located in Belgium, the Nationale Bank van België/Banque Nationale de Belgique acts as lead overseer and is supported in this task by the other G10 central banks, including the ECB.

#### **1.3.4.2 Recent developments and initiatives**

In 2005 SWIFT successfully completed the SWIFTNet Phase 1 migration of all its customers to the new messaging infrastructure, which is based on Internet Protocol (IP) technology and on a secure IP network (SIPN). This move allows SWIFT customers to use interactive messaging and file transfer modalities in addition to the existing store and forward messaging services. During the second quarter of 2005 SWIFT decommissioned its X25 infrastructure, which was previously used by its customers to exchange financial messages.

Closely related to the Phase 1 migration is the SWIFTNet Phase 2 project. This introduces a single security model based on standard public key infrastructure (PKI) to access all SWIFTNet services (including FIN) and provides new control mechanisms allowing customers to control unwanted traffic. The SWIFTNet Phase 2 migration is scheduled to start in 2007 and will take place gradually during predefined country windows. The two security mechanisms will coexist during the migration period in order to minimise the impact on SWIFT's customers.

SWIFT is working closely with the user community and standards organisations and groups in order to achieve convergence of messaging standards. The aim is to allow the user community to benefit from potential cost savings and eliminate redundancies and complexity when exchanging messages through various systems and communication protocols.

#### **1.3.4.3 Market infrastructures**

SWIFT provides the Interlinking messaging service for the 17 central banks (including the

ECB) participating in TARGET, for the EURO1 and STEP2 systems of the Euro Banking Association, for the CLS system and for a number of RTGS systems in the EU. SWIFT will also be the initial message service provider for TARGET2.

SWIFT also provides messaging services to a number of central securities depositories (CSDs) in the EU, which use connectivity and common message standards such as SWIFT and ISO 15022 (of which SWIFT is the registration authority) to communicate securely with their members. Clearing and settlement infrastructures that are accessible via SWIFT include Clearstream, the ECSDA, Euroclear and the London Clearing House (LCH).

#### **1.3.4.4 SWIFT messaging**

SWIFT is the most widely used payment service provider in the world. As the main carrier of payment information, its message types, message formats and technical infrastructure set a kind of benchmark for the processing of payments.

#### **1.3.4.5 SWIFT statistics**

The last SWIFT statistics published in December 2006 revealed that message traffic has continued to increase. Europe processed 65.7% of the total number of messages (1.8 billion). The total number of messages in Europe increased by 12.8% compared with 2005. Securities and infrastructure messaging continued to grow rapidly.

SWIFT's largest market (i.e. payment messages) grew by 9.3% compared with 2005 to stand at 1.57 billion payment messages in 2006, representing 55% of the total SWIFT transaction volume. Securities are currently the second largest market, representing 36.6% of total transaction volume, and are also the fastest growing, with an increase of 22.1% compared with 2005 and a total of 1.04 billion messages in 2006. Finally, treasury messages had growth of 12.8% and a total of 180 million messages in 2006.

## 2 MEANS OF PAYMENT IN THE RETAIL AREA (AGGREGATED EURO AREA DESCRIPTION)

### 2.1 NON-CASH PAYMENT INSTRUMENTS

Retail payment media are generally grouped into cash payments and non-cash payments. This section considers developments in non-cash payment instruments. Particular attention is paid to recent developments related to the Single Euro Payments Area project. Over time non-cash payment instruments have developed some specific characteristics, which are related to national preferences. The country chapters of the Blue Book describe the national features of existing non-cash payment instruments. The main instruments are: cheques, credit transfers, direct debits and payment cards.

The cross-border use of cheques is decreasing and is expected, ultimately, to be phased out. The banking industry in the euro area has defined a strategy for promoting the use of alternative electronic instruments for cross-border payments in Europe.

The launch of the Single Euro Payments Area project will have major implications for the characteristics and use credit transfers and direct debits (more information on which can be found in Section 2.2 below).

Payment cards can be used for making payments for goods and services at point-of-sale (POS) terminals or remotely (mail order, telephone order or via the internet) and for making cash withdrawals at automated teller machines (ATMs); both functions are usually combined on a single card. A distinction is made between: (i) a debit card, i.e. a card, the use of which entails the immediate debiting of the cardholder's account; (ii) a credit card, i.e. a card, the use of which entails, at the cardholder's discretion, either settlement in full by the end of a specified period, or settlement in part with the remaining balance taken as extended credit and interest being charged; and (iii) a delayed debit card, the use of which entails settlement in full by the end of a specified period.

A card scheme is a technical and commercial infrastructure set up to serve one or more particular card brands which provides the organisation and governs the framework rules. The card scheme also decides on the standards and technical specifications and grants membership licences to the card issuers and acquirers (banks). These are the basic functions of a card scheme; additional functions can also fall within its field of competence, but the situation varies widely across schemes.

The most common other retail payment instruments are remittance transfers, e-money and traveller's cheques. Remittance transfers are cross-border person-to-person payments of relatively low value, typically recurrent payments by migrant workers (who send money to their families in their home country every month). There are different ways in which remittance transfers can be made, e.g. cash payments using individuals who provide this service to their local immigrant communities, services from specialised global money transfer operators and bank-to-bank transfers.

E-money is a store of monetary value on an electronic device that may be widely used for making payments to undertakings other than the issuer of e-money. Such transactions do not necessarily involve bank accounts, with the device instead acting as a prepaid instrument. E-money is stored either on a card or on a central computer, and the holder must pay the value to the card issuer in advance.

Traveller's cheques are essentially prepaid paper-based instruments issued in specific denominations and currencies for general-purpose use in business and personal travel. They do not specify any particular payee, are non-transferable once signed, can be converted into cash only by their specified owner, and are generally accepted by banks, and often by large retailers, hotels and restaurants.

## 2.2 RECENT DEVELOPMENTS RELATED TO THE SINGLE EURO PAYMENTS AREA PROJECT

The European banking industry has set up the SEPA project, which consists of a series of initiatives aimed at the introduction of common instruments, standards and infrastructures for retail payments in euro across Europe (which the banking industry defined in the SEPA project as being the 27 EU Member States, Iceland, Norway, Liechtenstein and Switzerland). For citizens, this will mean that, from 2008 onwards, they should be able to make euro payments throughout Europe from a single bank account, using a single set of payment instruments, as easily and securely as in the national context today. Companies and financial institutions will benefit from streamlined payment handling and simplified pan-European outreach.

### 2.2.1 THE MAIN ELEMENTS OF THE SEPA PROJECT

The SEPA project is organised in three layers. The first layer is the scheme layer, which defines the new set of interbank rules, practices and standards for the execution of euro payments (e.g. direct debit and credit transfer schemes). A second layer consists of the processing infrastructures, which provide operational services for clearing and settlement of payments in euro. A third layer consists of new SEPA products and services which banks and other service providers offer to their customers on the basis of the core schemes (first layer).

Concerning the first layer, the scheme layer, the European Payments Council (EPC) has defined SEPA schemes for credit transfers and direct debits. Each scheme consists of a common agreed rulebook, which includes practices and standards for the execution of payments in euro. The current national schemes for credit transfers and direct debits, which have their own specific rules and agreements, will gradually be replaced by the common SEPA schemes and will eventually cease to exist. On the basis of these new SEPA schemes, banks can offer tailored products to their clients anywhere in the euro area.

In addition to the two schemes mentioned above, the EPC has also defined one framework for card payments and another for cash payments. The SEPA cards framework (SCF) presents a series of principles and rules aiming at the elimination of elements that fragment the euro area card market into national markets, so as to allow European holders of general-purpose cards to have consistent payment or cash withdrawal experiences throughout the SEPA. The cash payment framework aims for a more harmonised handling of cash services in the euro area.

With regard to the second layer, the processing infrastructure layer, the EPC has defined a framework which clarifies the roles and procedures for the processing infrastructures that provide clearing and settlement services. The framework provides the basis for cooperation between schemes and infrastructures. Traditionally, card payment schemes in the national context often combined the scheme management and the processing infrastructures, and these were often part of the same company. In the new SEPA environment, the schemes will be separated from the infrastructures so that processing service providers can compete and offer their processing services to schemes across the SEPA.

As regards the third layer, the products and services layer, the EPC has not defined a common framework. On the basis of the new instruments and processing functionalities, banks and service providers can develop new banking products and services which will suit their customers. They can compete on price, service level or other features of the products offered to potential clients, as long as they do not interfere with the rules of the scheme.

## SEPA INSTRUMENTS

The EPC has developed a set of rulebooks and frameworks which will govern the SEPA instruments:

### *SEPA credit transfer rulebook*

The EPC has defined common rules and obligations to be observed by participants in the credit transfer scheme. The rulebook details its functioning and governs the relationship with processing infrastructures. It stipulates a maximum execution time, guarantees that the full amount will be credited to the recipient's account and places no limit on the value of payments.

### *SEPA direct debit rulebook*

The SEPA direct debit rulebook lays down a set of interbank rules, practices and standards to allow the banking industry to provide direct debit transactions on the basis of the same conditions throughout the SEPA.

The success of the SEPA direct debit scheme can only be ensured if all debtor banks participate, thereby making all debtors reachable for direct debit transactions. An overall participation process is being considered by the EPC to commit all stakeholders and to ensure reachability.

### *SEPA cards framework*

For card payments, in contrast to credit transfers and direct debits, the EPC has not defined a "scheme", but rather a framework, i.e. a set of high-level principles and rules. The SEPA cards framework will be implemented by card schemes, following a decision by their participants, i.e. the banks. The principles defined in the SCF concern the schemes' rules, requirements, interchange fees, fraud prevention, transaction authorisation, interoperability and market statistics. The objective of these principles is the establishment of a SEPA integrated market where holders of general-purpose cards can make payments and cash withdrawals in euro abroad with the same ease and convenience as they do in their home country. It should make no difference whether they use their card(s) in their home country or elsewhere within the SEPA. This contrasts sharply with the current fragmented situation, where national schemes serve national markets in fairly different ways, and transactions between euro area countries are carried out by the international card schemes.

With the aim of creating an integrated market, the SCF defines in particular three options which each bank, as participant and user of various national and international card schemes, has the possibility of using:

- replacement of the national scheme with an international scheme;
- evolution towards SCF compliance through, for example, alliances or expansion to cover the entire SEPA; and
- co-branding of cards with both a national and an international card scheme.

### *Framework for the evolution of clearing and settlement of payments in the SEPA*

This framework establishes the principles on which providers of clearing and settlement mechanisms could support the schemes for SEPA credit transfers and direct debits. It clearly delineates the roles and responsibilities of the scheme layer and the infrastructure layer. It also contains a classification of different infrastructure types, ranging from pan-European ACHs, intra-bank or inter-group arrangements to purely bilateral arrangements such as correspondent banking.

### *Single euro cash area framework*

The smooth operation of payment systems requires a mix of instruments, including cash. Since 2002 euro banknotes and coins have been – from the general public’s perspective – a fully functioning pan-European payment instrument. Cash is by far the most widely used payment instrument in the euro area. In order to create a single euro cash area also for professional cash handlers, the ECB has agreed on a number of measures aimed at contributing to a fair competitive environment as regards the Eurosystem’s cash services to the banking industry, which is the main counterpart of the Eurosystem for cash services and an intermediary in the provision of cash to the general public. Further steps will be implemented in order to achieve, in the medium term, more convergence of NCB cash services.

## **2.2.2 STAKEHOLDERS IN THE CREATION OF THE SEPA PROJECT**

The SEPA project has mainly been initiated through the contributions and interaction of three key stakeholders: the banking industry, the Eurosystem and the European Commission.

The European banking industry has set up a self-regulatory body to manage the SEPA project, called the European Payments Council, which consists of some 65 banks, including different types of European bank, the three European credit sector associations and the Euro Banking Association. The EPC Plenary is the decision-making and coordinating body of the EPC. The Plenary’s main tasks are related to the design and specification of a new pan-European framework which should foster integration for euro payments. The Plenary also provides guidance on common payment issues related to standardisation, best practices and implementation. This SEPA framework and organisation forms the basis for a competitive and innovative payment market.

In order to design a SEPA framework which is acceptable to the industry, different working groups have been set up, involving a wide range of national experts. In addition, national preparatory committees in different countries have been created to implement the SEPA framework and to ensure that different banking communities are represented and informed. The European and national banking associations are involved in order to promote the new SEPA concepts within their constituencies. Infrastructure providers are also contributing to the SEPA project.

The Eurosystem’s interest in the SEPA project, and in the financial integration of payment systems more generally, is based on the Eurosystem’s statutory role of promoting the smooth operation of payment systems. The Eurosystem fosters financial integration by acting as a catalyst or facilitator for development. In several progress reports, the Eurosystem has provided guidance by setting the SEPA objectives and high-level requirements. The Eurosystem also has a coordinating role, as it brings different stakeholder groups together. It has, for instance, consulted the banking

industry, infrastructure providers and end-users (which include corporations, merchants, small and medium-sized enterprises, public administrations and consumers) on SEPA issues. At the national level, the individual central banks act as a catalyst in the implementation process and in the organisation of information campaigns. The Eurosystem has also stated that it could become operationally involved if deemed necessary.

Finally, the European Commission's interest in the SEPA project stems from its efforts to create a domestic market for the EU. The Commission investigates barriers which prevent the creation of the Single Market in relation to banking and finance. By helping to remove legal barriers and introducing harmonised rules for making payments, the Commission is stimulating competition in the payment market on the basis of a level playing-field and economic integration in general.

### 2.2.3 NEXT STEPS TOWARDS IMPLEMENTATION OF THE SEPA

Market integration of the retail payment systems requires time to take effect. The Eurosystem and the Commission have set the final objectives concerning the security and efficiency of the SEPA instruments and infrastructures. To respond to these objectives, the EPC, in coordination with the ECB, has set up a timeline with concrete deliverables covering the period until end-2010.

The timeline of the SEPA project is designed around three main phases: the design of the framework, the implementation of the framework, and the migration. The first phase, the design and preparation phase, started in 2004. This phase involved the design of the new credit transfer and direct debit schemes and the frameworks for card, cash and processing infrastructures. It also included the development of the necessary standards.

The second phase, the implementation phase (2007 and 2008), includes the deployment and development of pilot programmes and

preparations for the launch of the new framework. A communication strategy and monitoring process will accompany the launch of the SEPA schemes. The EPC will perform a coordinating role, while the individual banks, national communities, associations and regulators will ensure the deployment of the SEPA instruments.

Finally, the migration period (2008 until end-2010) will be a transitional period in which there will be a coexistence of national schemes and SEPA schemes, and a gradual migration to the latter. By end-2010 a critical mass of payments should have migrated to the SEPA payment instruments.

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

### 3.1 THE REAL-TIME GROSS SETTLEMENT SYSTEM: TARGET

#### 3.1.1 THE CURRENT TARGET SYSTEM

The Trans-European Automated Real-time Gross settlement Express Transfer system is the real-time gross settlement system for the euro. It is a decentralised system consisting of 16 national RTGS systems, the ECB payment mechanism (EPM) and the Interlinking system. The Interlinking system is a telecommunications network linking the national RTGS systems and the EPM. The system successfully commenced live operations on 4 January 1999, with some 5,000 participants throughout the EU.

The decision to construct the TARGET system was taken by the Council of the European Monetary Institute (EMI) in March 1995. TARGET was developed in order to meet three main objectives: first and foremost, to facilitate the integration of the euro money market in order to allow for the smooth implementation of the single monetary policy; second, to improve the soundness and efficiency of payments in euro; and third, to provide a safe and reliable mechanism for the settlement of payments on an RTGS basis, thus contributing



to a minimisation of risks in making payments. In order to achieve these objectives, TARGET offers the possibility of transferring central bank money on a cross-border basis as smoothly as in the domestic market, making it possible to reuse these funds several times a day.

A unique feature of TARGET is that its euro payment services are available throughout the EU, an area larger than that in which the single currency has been adopted. Indeed, four EU countries which have not yet adopted the euro (Denmark, Estonia, Poland and the United Kingdom) are connected to TARGET. In view of Slovenia's entry into the euro area in January 2007, Banka Slovenije decided, for reasons of efficiency, not to develop its own euro RTGS system, but instead to use the RTGS system of the Deutsche Bundesbank to connect to the current TARGET system. Since it is necessary for all countries adopting the euro to participate in TARGET, and as the time that was available to set up the system was limited, all EU NCBS had to start investing money in TARGET before they knew whether they would be part of the euro area. Thus, in 1995 the EMI Council agreed that all current EU NCBS should be ready to connect to TARGET by 1999. It was pointed out, however, that for those countries which did not adopt the euro from the outset, the connection would be subject to certain conditions, which were subsequently decided by the Governing Council of the ECB.

On 24 October 2002 the Governing Council of the ECB decided that, after joining the EU, the central banks of new Member States would be given the same rights and obligations with regard to TARGET connection as the current non-euro area NCBS. Different technical options for such connections, including variants avoiding the need for individual euro RTGS platforms, have been elaborated and presented to the central banks of the new Member States on a "no compulsion, no prohibition" basis. Only when new Member States join the euro area will connection to TARGET become mandatory.

### **3.1.1.1 Operating rules**

The rules governing TARGET and its operation can be found in the Guideline of the European Central Bank on a Trans-European Automated Real-time Gross settlement Express Transfer system ("TARGET Guideline") and the sets of rules and procedures contained in the national regulations and/or contractual provisions ("national RTGS rules") applying to the EPM and each of the national RTGS systems which make up TARGET. The TARGET Guideline came into effect on 1 January 1999, i.e. the starting date of Stage Three of EMU.

The TARGET Guideline applies to the ECB and the NCBS participating in the Eurosystem. It contains provisions, inter alia, on: a number of minimum common standards with which each national RTGS system participating in or connected to TARGET must comply (e.g. regarding access criteria, currency units, pricing rules, times of operation, rules on what kinds of payment may be processed through TARGET, when a payment order should be processed or when a payment order is considered to be irrevocable, and intraday credit); arrangements for cross-border payments through the Interlinking system; security strategy and security requirements for TARGET; the framework for the auditing of TARGET; and the management of TARGET.

An agreement has been entered into by the Eurosystem and the NCBS of those Member States which have not adopted the single currency. This provides a mechanism through which the NCBS of Member States outside the euro area are able to connect to TARGET and adhere to the rules and procedures referred to above. Some modifications and refinements have been made to these rules and procedures in order to take into account the special situation of the NCBS of Member States outside the euro area.

### **3.1.1.2 Participation in the system**

According to the TARGET Guideline, only supervised credit institutions as defined in the first indent of Article 1 of the First Banking

Co-ordination Directive which are established in the European Economic Area (EEA) can be admitted as direct participants in a national RTGS system. In addition, as an exception, the following entities may also be admitted as participants in a national RTGS system subject to the approval of the relevant NCB:

- Treasury departments of central or regional governments of Member States active in money markets;
- public sector bodies of Member States authorised to hold accounts for customers;
- investment firms established in the EEA which are authorised and supervised by a recognised competent authority; and
- organisations providing clearing or settlement services subject to oversight by a competent authority.

Additionally, central banks of the ESCB (including the ECB) can participate in TARGET.

The criteria for participation in a national RTGS system are set out in the RTGS rules concerned and are available to interested parties. RTGS rules require reasoned legal opinions, based on the Eurosystem's harmonised terms of reference for legal opinions, to be requested from applicants and reviewed by the relevant NCB. The harmonised terms of reference are available to interested parties. Capacity opinions (which establish that an applicant is legally able to conclude agreements) are requested for each individual (domestic and foreign) applicant when joining the system, unless such an opinion has been received in another context. Country opinions (which establish that there are no foreign legal provisions which could have adverse effects on the agreements concluded) are requested from the jurisdictions of foreign participants incorporated in a non-EEA country, unless the relevant NCB has already obtained an up-to-date opinion for the jurisdiction in question in relation to other participants from the same country.

It is also possible for credit institutions to access TARGET remotely. Remote access to settlement facilities in TARGET is defined as the possibility for an institution established in a country in the EEA to become a direct participant in an RTGS system in TARGET in another country and, for that purpose, to have a settlement account in euro in its name with the central bank of that country, without necessarily having established a branch or subsidiary in that country. Such credit institutions can only participate in TARGET on a positive balance basis, as they do not have recourse to intraday credit or to the Eurosystem's marginal lending facility.

#### **3.1.1.3 Types of transaction handled**

TARGET can be used for all credit transfers in euro. It processes both interbank and customer payments and there is no upper or lower limit placed on the value of payments. All payments are treated equally, irrespective of their value.

The following types of transaction are handled by TARGET:

- payments directly connected with central bank operations in which the Eurosystem is involved either on the recipient or the sender side;
- the settlement operations of large-value netting systems operating in euro; and
- interbank and commercial payments in euro.

It is mandatory for the first two types of transaction to be settled through TARGET.

TARGET is also used for the handling of transfers made between ESCB central banks participating in or being connected to TARGET.

#### **3.1.1.4 Operation of the transfer system**

In order to meet the needs of the financial markets in general and of its customers in particular, TARGET provides long daily operating hours: it opens at 7 a.m. CET (Central European Time) and closes at 6 p.m. CET. In order to allow participants to better manage

their end-of-day liquidity, customer payments are subject to a cut-off time set at 5 p.m. CET. Furthermore, common closing days apply to TARGET. From 2002 onwards TARGET has closed not only on Saturdays and Sundays, but also on New Year's Day, (Catholic/Protestant) Good Friday, (Catholic/Protestant) Easter Monday, Labour Day (1 May), Christmas Day and 26 December. TARGET closing days are, in effect, non-settlement days for the money market and the financial markets in euro, as well as for foreign exchange transactions involving the euro. The CCBM is closed on TARGET closing days.

The TARGET set-up can be described as a decentralised system in which payment messages are exchanged on a bilateral basis without a central counterparty. No information on payment orders exchanged is sent to the ECB during the business day. However, in order to ensure the correctness of the processing of the cross-border payments exchanged within the system during the business day and the inter-NCB balance positions resulting from this activity, specific control operations are performed at the end of the day by the end-of-day application maintained by the ECB. These operations include a check that all bilateral messages sent by one NCB to another NCB have been received and that the total values of cross-border payments sent and received by the NCBs during the day match. No NCB may close before it has finalised its positions with all bilateral partners.

#### **3.1.1.5 Transaction processing environment**

Cross-border TARGET payments are processed via the national RTGS systems and exchanged directly on a bilateral basis between NCBs. All participants are identified by a Bank Identifier Code (BIC) and are listed in the TARGET directory, which is available from SWIFT and contains BICs worldwide.

National RTGS systems and the EPM are connected via the Interlinking system, which is composed of a telecommunications network linked in each country to a local interface called

the national Interlinking component. These components consist of infrastructures and procedures which are used within or in addition to each RTGS system to process cross-border payments. The role of the Interlinking components is to convert the presentation of payment data from the national standard into the Interlinking standard and vice versa.

The technical design of the national RTGS systems and the Interlinking components (RTGS operating systems, hardware and software, development tools, links between technical components, etc.) falls under the responsibility of the individual NCBs and the ECB, subject to some minimum common security features and performance requirements which have been defined for RTGS systems linked to TARGET. Areas which have been the subject of harmonisation include operating times, pricing and the provision of intraday credit. Given that TARGET incorporates RTGS systems which have been established under local conditions, the payment services offered to the end-users of different national systems are not fully identical. The Interlinking procedures, however, are the same for all countries.

A test centre is maintained at the ECB so that the NCBs and the ECB can test the compliance of their systems with the Interlinking specifications. All relevant new or amended software facilities must be tested before being integrated for multilateral testing and subsequent live operation in TARGET.

#### **3.1.1.6 Settlement procedures**

TARGET is a real-time gross settlement system. Payment transactions are settled one by one on a continuous basis in central bank money.

In order to initiate a cross-border payment, the ordering credit institution sends a payment order to the local NCB through the local RTGS system. The sending NCB checks the validity of the payment (which must be presented in accordance with the agreed standards and contain the information needed) and the

availability of sufficient funds or overdraft facilities. The sending NCB also checks that the receiving RTGS is operational.

The sending NCB is entrusted with the tasks, if necessary, of converting the payment order into the message standard which is used by the Interlinking system, of including the additional security features used for the communication between NCBs, and of sending the message through the Interlinking network to the receiving NCB. Once the sending NCB has checked the validity of a payment message and the availability of funds or sufficient overdraft facilities, the amount of the payment is debited irrevocably and without delay from the RTGS account of the sending credit institution and credited to the Interlinking account of the receiving NCB.

As soon as the receiving NCB receives the payment message, it checks the security features and verifies that the beneficiary bank, as specified in the payment order, is a participant in the domestic RTGS system. If this is the case, the receiving NCB converts, where appropriate, the message from the Interlinking standard into the domestic standard, debits the Interlinking account of the sending NCB, credits the beneficiary's RTGS account and delivers a positive acknowledgement to the sending NCB or the ECB. Finally, the receiving NCB sends the payment message, through the local RTGS system, to the beneficiary credit institution. If the receiving bank is not a participant in the RTGS system, the receiving NCB rejects the payment message and asks the sending NCB to recredit the amount to the sending bank's account.

### 3.1.1.7 Credit and liquidity risk

TARGET settles payments in central bank money with immediate finality. In TARGET, the account of the receiving institution is never credited before the account of the sending institution has been debited. As a result, there is always the certainty for the receiving institution that funds received through TARGET are unconditional and irrevocable. The receiving

institution is therefore not exposed to credit or liquidity risk originating from such payments received.

The availability and cost of liquidity are two crucial issues for the smooth processing of payments in RTGS systems. In TARGET, liquidity can be managed very flexibly and is available at low cost, since minimum reserves – which credit institutions are required to hold with their central bank – can be used for settlement purposes during the day. Moreover, the averaging provisions applied to minimum reserves allow for flexibility in the banks' end-of-day liquidity management. The overnight lending and deposit facilities also allow for "last-minute" reactions to unexpected liquidity situations. In addition, the Eurosystem provides intraday credit free of charge. However, all central bank credit must be fully collateralised. The range of eligible collateral is very wide. Assets eligible for monetary policy purposes are also eligible for intraday credit.

### 3.1.1.8 Pricing

The charge for TARGET cross-border payments between direct participants is based on the number of transactions sent by a participant within a single RTGS system in accordance with the following regressive scale:

- €1.75 for each of the first 100 transactions per month;
- €1.00 for each of the next 900 transactions per month; and
- €0.80 for each subsequent transaction in excess of 1,000 per month.

The cross-border fee does not depend on the destination or on the value of the payment. Fees are charged only by the sending NCB or the ECB to the sending participants in the national RTGS system or the EPM. No fees are charged by the receiving NCB or the ECB to the receiving participant.

The cross-border TARGET fee structure does not include the costs of the telecommunications link between the sender and the national RTGS system in which the sender is a participant. The fee for this telecommunications link is paid according to domestic rules.

RTGS systems may charge extra fees for any additional services they may provide (e.g. the acceptance of paper-based payment instructions).

The price of domestic RTGS transfers is determined at the national level by the NCBs. When determining the price structure, the NCBs take into account the principles of cost recovery, transparency, an open market economy with free competition, and non-discrimination. They also take into account the fact that the fees for domestic and cross-border transfers should be in the same range, so as not to affect the singularity of the money market. These fee structures are disclosed to interested parties.

#### **3.1.1.9 Statistical data for TARGET**

The turnover figures for TARGET have steadily increased since January 1999. In 2006 the daily average number of payments processed by the system as a whole (i.e. both cross-border and domestic payments) was 83,179,996, representing a value of €533,541 billion. TARGET cross-border traffic accounted for 35% of the total TARGET value and 23% of the total TARGET volume in 2006. Of the cross-border TARGET payments, 95% in terms of value and 47% in terms of volume were interbank transactions, with the remainder being customer payments. The average value of a cross-border interbank payment was €19.6 million, and the average value of a cross-border customer payment was €0.9 million.

### **3.1.2 THE FUTURE TARGET SYSTEM**

#### **3.1.2.1 Background**

TARGET has contributed to the integration of the euro money market and has successfully served the needs of the single monetary policy of the ECB. However, the environment in which

TARGET operates has changed and continues to do so. Technological developments, as well as the fast-moving process of European integration, have triggered requests from users for enhanced and harmonised levels of service.

Consequently, in October 2002 the Governing Council of the ECB decided to develop the next generation of TARGET (TARGET2) in order to better meet user needs by:

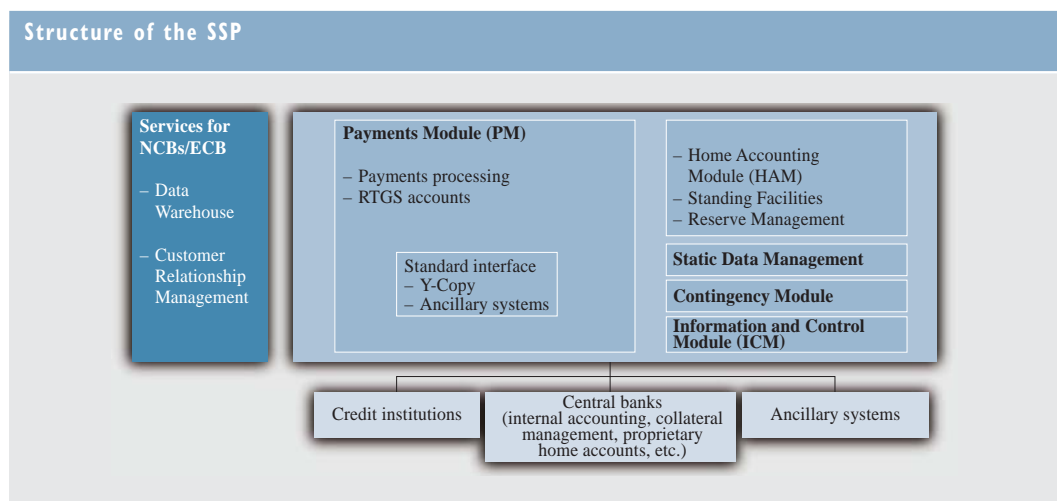
- providing a harmonised service level;
- ensuring cost-efficiency; and
- preparing for future developments, including the enlargement of the euro area.

In TARGET2, the decentralised structure of the current TARGET system will be replaced by a single technical platform, the “Single Shared Platform”. In December 2004 the Governing Council approved the joint offer made by three national central banks of the euro area – the Deutsche Bundesbank, the Banque de France and the Banca d’Italia – to build and operate the SSP on behalf of the Eurosystem. Regardless of the single technical platform, TARGET2 is legally structured as a multiplicity of RTGS systems, i.e. each central bank will maintain full responsibility for the business and legal relationships with “its” participants.

TARGET users will migrate to TARGET2 in different waves on different predefined dates, starting on 19 November 2007. It is planned that all central banks participating in TARGET2, together with their respective national banking communities, will have migrated to the new system by May 2008.

#### **3.1.2.2 System structure**

A modular approach has been adopted for the development of the TARGET2 single technical infrastructure, the SSP (see the chart below). Every module in the SSP is closely related to a specific service (e.g. the Payments Module (PM) for the processing of payments). Some of the modules (the Home Accounting Module, the Standing Facilities Module and the Reserve



Management Module) can be used by the individual central banks on an optional basis. Central banks which do not use these modules may offer the respective services via proprietary applications in their domestic technical environments.

SWIFT standards and services will be used (FIN, InterAct, FileAct and Browse) to enable standardised communication between the TARGET2 system and its participants.

### 3.1.2.3 Business continuity

The business continuity concept of TARGET2 consists of a multi-region/multi-site architecture. For the payment processing and accounting services, there will be two regions. In each region, there will be two distant sites. This will be combined with the principle of region rotation in order to ensure the presence of experienced staff in both regions.

TARGET2 will offer the highest possible level of reliability and resilience, as well as sophisticated business contingency arrangements commensurate with the systemic importance of the TARGET2 infrastructure.

### 3.1.2.4 Participation

A number of options will be provided for access to TARGET2. These include direct and indirect participation, “addressable BICs” and “multi-

addressee access” to the system, also known as “technical BIC access”.

The criteria for direct participation in TARGET2 will be the same as in the current TARGET system. Direct participants will hold an RTGS account in the PM of the SSP with access to real-time information and control features, and will therefore be able to:

- (i) submit/receive payments directly to/from the system; and
- (ii) settle directly with their respective national central bank. Direct participants will be responsible for all payments sent from or received on their account by any TARGET2 entity (i.e. indirect participants, addressable BICs and multi-addressee access entities as described below) registered through them.

Indirect participation implies that payment orders are always sent to/received from the system via a direct participant. Payments are settled in the direct participant’s account in the PM of the SSP. Indirect participants will be registered by and under the responsibility of the direct participants, which act on their behalf, and will be listed in the TARGET2 directory. Only supervised credit institutions established within the EEA can become indirect participants.



Another category of access already available in the current TARGET system is that of TARGET2 addressable BICs. Any direct participant's correspondent or branch that holds a BIC is eligible to be listed in the TARGET2 directory, irrespective of its place of establishment. Moreover, no financial or administrative criteria have been established by the Eurosystem for such addressable BICs, meaning that it will be up to the relevant direct participant to define a marketing strategy for offering such status. It will be the responsibility of the direct participant concerned to forward the relevant information to the appropriate national central bank for inclusion in the TARGET2 directory.<sup>13</sup> Addressable BICs will always send and receive payment orders to/from the system via a direct participant, and their payments will be settled in the account of that direct participant in the PM of the SSP.

Although technically there is no difference between an indirect participant and an addressable BIC<sup>14</sup> in legal terms, only indirect participants will be recognised by the TARGET2 system and, as such, benefit from the protection of the SFD (in the countries where such protection has been granted).

Finally, with the multi-addressee access in TARGET2, direct participants will be able to authorise branches and other credit institutions belonging to their group, located in EEA countries, to channel payments through the direct participant's main account without its involvement, by submitting/receiving payments themselves directly to/from the system. This offers a direct participant's affiliate banks, or a group of banks, efficient features for liquidity management and payments business. The payments will be settled on the account of the direct participant.

#### **3.1.2.5 Processing of payments**

TARGET2 will, like TARGET1, offer its participants settlement services in euro. Any euro payment which participants wish to process in real time and in central bank money can be executed in TARGET2. TARGET2 will

support the SWIFTNet FIN payment types MT 103/103+, MT 202 and MT 204<sup>15</sup>. Every payment order can be assigned a specific payment priority (normal, urgent and highly urgent). In addition, ancillary systems connected via the ASI will be able to send XML payment messages. Furthermore, the increased time criticality of payments will be taken into account by enabling the submission of payments with a debit time indicator, such as those needed in the context of CLS. Payments to TARGET2 can be submitted up to five working days in advance.

Unless participants have indicated a settlement time, payment orders will be settled immediately or at least by the end of the business day, provided that sufficient funds are available and any liquidity limits and liquidity reservations are not breached. For highly urgent and urgent payments, the FIFO principle will apply, i.e. they will be settled in chronological order. Urgent and normal payments will not be settled in the event that highly urgent payments are queued. The only exception is that payments with lower priority will be executed if – and only if – this allows an offsetting transaction to be settled and the overall effect of this offsetting results in a liquidity increase for the participant in question. Normal payments will also be settled in accordance with the FIFO bypassing principle. This means that they are settled immediately (independently of other queued normal payments accepted at an earlier time), provided that sufficient funds are available. Payment orders that are not settled as described in the entry disposition will be placed in queues in accordance with the respective assigned priority. The settlement of queued payments will be optimised by several optimisation procedures on a continuous basis. The participant can also influence the processing of payments by changing the queue position of

13 For technical reasons, an indirect participant/addressable BIC can be linked to only one direct participant.

14 The TARGET2 directory will distinguish between indirect participants and addressable institutions.

15 Please refer to the SWIFT website at <http://www.swift.com>.



payment orders to either the front or the end of the respective queue.

### **3.1.2.6 Liquidity management**

The following sources of liquidity can be used in TARGET2: balances on RTGS accounts, provision of intraday liquidity and offsetting payment flows (i.e. the use of algorithms to settle a number of queued payments). As in the current TARGET system, intraday credit will be granted to participants against eligible collateral by the respective national central bank.

A direct participant in the PM has the option to control the use of the available liquidity by means of a reservation system and a limit system, which may, as required, be combined. In TARGET2, it will be possible for participants to reserve liquidity for urgent and highly urgent payments and to dedicate liquidity for the settlement of ancillary systems. Participants will also be able to define bilateral and multilateral sender limits and actively manage their payment queues (e.g. by changing the priority or the order of queued transactions).

Furthermore, banks will be able to use a liquidity pooling functionality within a group to view and use their liquidity, irrespective of the RTGS account on which it is held.

Liquidity pooling will be achieved by grouping a number of accounts. TARGET2 will offer two variants for liquidity pooling: (i) aggregated liquidity; and (ii) consolidated information. In the aggregated liquidity option, a payment order submitted by a participant belonging to a group of accounts will be settled if the payment amount is smaller than or equal to the sum of the liquidity available on all accounts (including credit lines, if any) in the group. Otherwise the payment order will be queued. The consolidated information option is an information tool: it will give comprehensive information to the participant subscribing to the service about the liquidity position of all of the entities of the group at any given moment. Such information will also be provided in the aggregated liquidity

option. However, payment amounts will be checked only against the liquidity available on the individual RTGS account of the sending participant. The liquidity available on other accounts in the group will not be used to settle the payment. In the event of insufficient liquidity on the sending bank's account, money will need to be transferred to that account.

Only credit institutions directly participating in the system will be able to use the consolidated information option. Owing to business and legal constraints, the virtual account option will only be available for accounts of euro area banks held with euro area central banks; another restriction is that this option will not be available for remote participants.

It will only be possible to establish a group of accounts for the consolidated information or aggregated liquidity options among credit institutions that belong to the same group.

### **3.1.2.7 Online information and control**

TARGET2 users will have access, via the Information and Control Module (ICM), to comprehensive online information and control of balances and payments. Through the ICM, TARGET2 users will have access to the PM and the static data (management) module. Depending on the decision of the respective central bank with regard to the use of the optional modules offered by the SSP, participants may also have access to the home accounting facility of the central banks and the applications for reserve management and standing facilities. Only data for the current business day are available through the ICM, the only exception being warehoused payments that have been delivered to TARGET2 up to five business days in advance. Users of the ICM will be able to choose what information they receive and when. Urgent messages (e.g. system broadcasts from central banks and warnings concerning payments with a debit time indicator) will be displayed automatically on the screen.

### 3.1.2.8 Ancillary systems

TARGET2 will provide cash settlement services in central bank money for all kinds of ancillary system, including retail payment systems, large-value payment systems, foreign exchange systems, money market systems, clearing houses and securities settlement systems. The main advantage of TARGET2 for ancillary systems is that they will be able to access any account on the SSP via a standardised interface. TARGET2 will offer six generic procedures for the settlement of ancillary systems (two real-time procedures and four batch procedures), which represents a substantial harmonisation of current practices.

### 3.1.2.9 Operating dates and times

TARGET2 will have the same operating dates and times as TARGET, being open from 7 a.m. to 6 p.m. CET on each of its working days, with a cut-off time of 5 p.m. CET for customer payments.

However, TARGET2 will start the new business day on the evening of the previous day. The night-time window will be available from 7.30 p.m. to 6.45 a.m. CET the next day, with a technical maintenance period of three hours between 10 p.m. and 1 a.m. CET. The night-time window<sup>16</sup> will facilitate the night-time settlement of the different ancillary systems in central bank money with finality, and will also support cross-system settlement during the night. During the night-time window liquidity transfers via the ICM between RTGS accounts and the dedicated sub-accounts will be technically possible. Ancillary systems and their participants will be able to choose whether or not to enable this liquidity transfer functionality, or to limit the functionality. Banks may, alternatively, decide not to participate in night-time settlement. The night-time window will generally increase the efficiency of night-time settlement and will favour initiatives such as cross-system delivery versus payment.

### 3.1.2.10 Pricing

The pricing scheme for the TARGET2 core service is as follows:

Option A			
Monthly fee			€100
Flat transaction fee			€0.80
Option B			
Monthly fee			€1,250
	Volume		
Band	from	to	Price
1	1	10,000	€0.60
2	10,001	25,000	€0.50
3	25,001	50,000	€0.40
4	50,001	100,000	€0.20
5	above	100,000	€0.125

The liquidity pooling service (aggregated liquidity option and consolidated information option) is an optional and separately priced core service. The liquidity pooling service will be charged at €1,200 per account per annum for the consolidated information option and €2,400 per account per annum for the aggregated liquidity option (which includes the consolidated information option). Furthermore, within a group of accounts (with either the consolidated information option or the aggregated liquidity option) group pricing will apply, which means the regressive transaction fee will be applied to all payments of the group as if they were sent from one account.

The following pricing will apply to the various ways of participating in TARGET2, in addition to TARGET2 transaction fees.

Type of participation	Monthly fee per account/BIC
Direct participation	€100 or €1,250 depending on the scheme chosen (see the TARGET2 core pricing scheme above)
Multi-addressee access	€80 per BIC address in addition to the BIC of the account of the direct participant
Unpublished account in the PM of the SSP	Direct participants which do not wish their BIC to be published in the TARGET2 directory will pay €30 per account (BIC) per month in addition to the monthly fee above

<sup>16</sup> Only procedure 6 (settlement on dedicated liquidity accounts) of the generic settlement procedures of the SSP's ancillary systems interface (ASI) will be offered during the night-time window.

In addition, direct participants will be charged a one-off registration fee of €20 for each registration of an indirect participant and €5 for each registration of an addressable BIC (including BICs of branches of direct and indirect participants) in the TARGET2 directory.

The pricing scheme for ancillary systems interacting with TARGET2 is shown in the table below.

All central banks, irrespective of their individual migration dates, will apply the TARGET2 prices once the third migration group has joined the shared platform, i.e. from 19 May 2008.

### 3.1.2.11 Payment types

The TARGET2 system will support the SWIFTNet FIN payment types MT 103/103+, MT 202 and MT 204<sup>17</sup>. In addition, ancillary systems connected via the ASI will be able to send XML payment messages.

## 3.2 THE EURO1 SYSTEM OPERATED BY THE EBA CLEARING COMPANY

### 3.2.1 INSTITUTIONAL SET-UP

The Euro Banking Association was founded in 1985 by 18 commercial banks and the European Investment Bank, with the support of the European Commission and the Bank for International Settlements. The EBA's original mission was to promote the ECU and to facilitate its use by developing and managing the ECU Clearing System. Today the EBA is a cooperative undertaking of over 190 member banks from EU countries, Norway, Switzerland, the United States, Australia, Japan, China, India, the Philippines and the United Arab Emirates. The EBA acts as a forum allowing the European payments industry to explore and debate all issues of interest to its members, in particular issues related to euro payments.

In May 1998 52 members of the EBA established a separate entity, namely the EBA Clearing

<sup>17</sup> For more details, refer to the SWIFT website at <http://www.swift.com>.

Pricing scheme					
1 A) Monthly fee plus regressive transaction fee			1 B) Monthly fee plus flat transaction fee		
Monthly fee:			€1,250	Monthly fee: €100	
Band	From	To	Transaction fee:	Flat rate transaction fee:	€0.80
1	0	5,000	€0.60		
2	5,001	12,500	€0.50		
3	12,501	25,000	€0.40		
4	25,001	50,000	€0.20		
5	50,001		€0.125		
2) Fixed fee I: (flat rate)					
Monthly fee per ancillary system:			€1,000		
3) Fixed fee II: (based on daily underlying gross value)					
	(EUR millions/day)	Annual fee	Monthly fee		
	€0-1,000	€5,000	€417		
	€1,001-2,500	€10,000	€833		
	€2,501-5,000	€20,000	€1,667		
	€5,001-10,000	€30,000	€2,500		
	€10,001-50,000	€40,000	€3,333		
	Above €50,000	€50,000	€4,167		

Company. Relying on the technical platform for the ECU Clearing System, which was enhanced to deal with the expected volumes of cross-border payments in euro, the EBA Clearing Company launched the multilateral large-value EU-wide payment system for euro credit transfers called EURO1 in December 1998. The participants in EURO1 are at the same time the shareholders of the EBA Clearing Company, which has its registered office in Paris.

The EURO1 system is managed and operated by the EBA Clearing Company.

The EBA Clearing Company maintains a dialogue with the EBA, and an agreement governs the relationship between the EBA, the EBA Clearing Company and the EBA Administration Company, that last entity being a company established under French law which provides administrative services and in particular human resources, technical support and other support to the EBA and the EBA Clearing Company.

### 3.2.2 PARTICIPATION AND ACCESS CRITERIA

EURO1 is an international and truly pan-European system. As at 31 December 2006 there were 71 clearing banks participating in EURO1. Although some of these are based in five non-EU countries (Australia, Japan, Norway, Switzerland and the United States), all EURO1 participants are either incorporated or act through branches in the EU.

There are three sets of access criteria for EURO1: legal, financial and operational criteria.

All access criteria must be met by those banks having the status of EURO1 participant and participating in the Single Obligation Structure (SOS; described in Section 3.2.3), which is the main legal basis of the EURO1 system and its loss-sharing arrangements. The financial criteria do not apply to participants which participate in EURO1 on a prefunding basis (“prefund participants”).

The legal criteria stipulate that a bank must have its registered office in a country which belongs to the Organisation for Economic Co-operation and Development (OECD) or the EU. The jurisdictions of these countries must be acknowledged by the EBA Clearing Company as “qualifying jurisdictions”, i.e. jurisdictions in which the SOS is recognised and enforceable. In this respect, an applicant can only be admitted to the system if a legal country opinion has been obtained under the laws of all jurisdictions relevant to that applicant’s participation in the EURO1 system. This country opinion only needs to be provided once. If positively assessed, the country will be added to the list of qualifying jurisdictions. In addition, the legal criteria stipulate that participants in EURO1 must be members of the EBA.

The financial criteria for having access to the EURO1 system are that a bank has own funds of at least €1,250 million (within the meaning of Directive 2000/12/EC) and a short-term credit rating of at least P2 attributed by Moody’s Investors Service Inc. or A2 attributed by Standard & Poor’s Rating Services, or any other equivalent short-term rating recognised by the EBA Clearing Company.

The main operational criteria for participation in the EURO1 system are as follows: (i) a system office, i.e. an EU-registered office or branch of the bank, must be designated for participation in EURO1; (ii) the designated office or branch must be a direct participant in an EU RTGS system participating in or being connected to TARGET; (iii) adequate technical and operational facilities must be provided which meet the technical specifications laid down by the EBA Clearing Company, and their operational reliability and robustness should be certified by the EBA Clearing Company; and (iv) the EBA Clearing Company must be notified of all offices through which a bank participates in the system.

The EBA Clearing Company has created two additional participation profiles, notably “sub-participation” and “prefund participation”. Sub-

participation status enables EURO1 participants to connect their branches, subsidiaries and entities included in the same consolidated accounts located in EEA countries to the EURO1 system. However, the participant is exclusively responsible for their activities and should ensure their proper technical and operational performance in accordance with the EURO1 rules. Prefund participation status was introduced for banks that do not meet the financial criteria of EURO1 that allow use of EURO1 for settlement of their STEP2 obligations in EURO1. Detailed information on the STEP2 system is provided in Section 3.4.2.

Admission to the EURO1 system is granted if the admission criteria set forth in the EURO1 rules are met. The admission of an applicant to EURO1 is subject to a vote by the shareholders of the EBA Clearing Company, i.e. the community of EURO1 clearing banks. The Board of the EBA Clearing Company decides whether an applicant is admitted as a prefund participant.

### 3.2.3 RULES OF THE SYSTEM

The main features of EURO1 are that it operates under the Single Obligation Structure, a legal construction subject to German law whereby the participants agree to enter into a contractual agreement that on each settlement day, at any given time, each participant will have only one single payment obligation or claim with respect to the community of other EURO1 participants as joint creditors/debtors. In accordance with the SOS, the processing of payments in EURO1 entails no bilateral payments, claims or obligations between participants. Nor will there be any form of set-off, novation or netting resulting from the continuous adjustment of the participants' claims or obligations. The SOS does not allow for any unwinding, even in the event of a participant being unable to honour its obligation when the system settles through TARGET at the end of the day.

### 3.2.4 TYPES OF TRANSACTION HANDLED

EURO1 processes credit and debit transfers.

Although there are no restrictions as regards the value or the originator of the transactions processed, the EBA Clearing Company, when developing the system, intended EURO1 as a system which should primarily focus on processing large-value payments in euro.

Furthermore, the balances of the EBA Clearing Company's STEP1 service for individual cross-border retail credit transfers are settled via EURO1 participants in the EURO1 system. The set-up of STEP1 is such that a bank which has joined the EBA Clearing Company's STEP1 arrangement is able to submit or receive individual low-value payments to or from other STEP1 banks and settle the balances via a EURO1 participant acting as its settlement agent. (More detailed information on the STEP1 service is provided in Section 3.4.1.)

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

The EURO1 system operates from 7.30 a.m. to 4 p.m. CET.

The EURO1 system uses SWIFT message standards (MT 102, 103, 104, 202, 204 and 400).<sup>18</sup> SWIFT provides the messaging infrastructure for EURO1 and acts as processing agent. The continuous calculation of the single obligation or claim of each EURO1 participant is carried out by the processing system operated by SWIFT.

The hardware and software used by the EBA Clearing Company for the management of EURO1 – including the EBA Clearing Company's monitoring station for the clearing phase and the second generation of the Business Administration System (BAS2) for the settlement phase – is duplicated at a parallel-running backup site located in a different country. At the level of SWIFT there are two dedicated machines located at each of the operating centres in Europe and the United States. The EURO1 system is also embedded in disaster recovery planning, with a further two

<sup>18</sup> For more details, please refer to the SWIFT website at <http://www.swift.com>.

dedicated machines located at SWIFT's third site.

### 3.2.6 SETTLEMENT PROCEDURES

At the end of the operating day (i.e. shortly after 4 p.m. CET), EURO1 positions are settled in central bank money with the ECB acting as the settlement agent. EURO1 participants with debit positions fund the amounts of their single obligations in the settlement account for EURO1 held by the EBA Clearing Company at the ECB through TARGET. After all amounts due have been paid in, and on the instructions of the EBA Clearing Company, the ECB will pay out the funds to the EURO1 participants with credit positions, also through TARGET. The relevant provisions regarding the settlement procedure are set out in the settlement service agreement, which has been concluded between the EBA Clearing Company and the ECB.

### 3.2.7 CREDIT AND LIQUIDITY RISK

Payment orders are processed on an individual basis. As a tool for managing financial risks, the EURO1 system applies debit and credit limits. Each participant must establish limits for all other participants individually (varying from a mandatory minimum of €5 million to an additional discretionary limit of up to €25 million, amounting to a maximum of €30 million bilateral risk per participant). On the basis of these bilateral limits, the system determines for each participant the multilateral debit cap (sum of limits received from the other participants) and the multilateral credit cap (sum of limits given to the other participants). These multilateral debit and credit caps per participant, which, in order to limit systemic risk, are capped at €1 billion, are binding throughout the operating day. Accordingly, processing consists of the continuous checking of the sending and receiving participants' positions (i.e. single obligations/single claims) resulting from the processing of payment messages, ensuring that the positions never exceed the respective multilateral debit or credit caps. No payment order that would cause a breach of a participant's credit or debit limits is processed by the system at any time. Instead,

any payment order which would cause the multilateral limit to be exceeded is queued. Participants can change the discretionary part of the bilateral limits on a daily basis until 6 p.m. CET on D-1 in accordance with their own risk management policy, e.g. the assessment of the creditworthiness of counterparties. The setting of the mandatory element to zero can only be done if the majority of the participants carry out a similar action.

A stand-by liquidity pool funded with cash, covering the maximum possible debit position of a participant in the system, i.e. €1 billion, is held at the ECB. The liquidity pool enables the system to complete settlement in the event that one or more participants fail to settle their single obligation at the end of the operating day, up to a total amount not exceeding the balance in the liquidity pool. Each participant contributes to the liquidity pool in equal shares, and each share is calculated on the basis of the number of participants plus one. Each share is assigned or pledged for the benefit of all other participants, so that the funds deposited in the pool can be used to cover the settlement obligations of failing participants. The ECB can only activate the cash deposited in the pool to complete settlement if it receives an instruction from the EBA Clearing Company. In the event that the pool is partially or entirely used to complete settlement at the end of the operating day, the surviving participants must replenish it before the start of processing the following day.

In the event of failures to settle representing an amount in excess of the balance of the liquidity pool, surviving participants will be obliged to provide additional funds in order to complete daily settlement. In the event of failures by up to three banks, the amount of liquidity to be provided by each surviving participant will be proportional to the risk (representing the bilateral limit) on the failing participants. If more than three banks fail on the same day, the amount of liquidity to be provided by each surviving participant will be proportional to the risk (representing the multilateral credit cap)



arising from their participation in the system (market crisis scenario). In case of a total default by one or more participants, losses are allocated in accordance with the same mechanisms.

The establishment, maintenance and activation of the liquidity pool at the ECB are governed by the deposit agreement<sup>19</sup> between the ECB and the EBA Clearing Company for the benefit of the banks participating in EURO1 as third-party creditors.

With the aim of smoothing out the payment flows in the EURO1 system, in June 2006 the EBA Clearing Company implemented the new liquidity management functionality (the “liquidity bridge”) designed to enable all EURO1 participants to move processing capacity between TARGET and EURO1 on an intraday basis. The liquidity bridge consists of two phases, notably prefunding (allowing for the shifting of payment capacity from TARGET to EURO1 between 7 a.m. and 3.30 p.m. CET) and distribution (allowing for the movement of payment capacity from EURO1 to TARGET at 2 p.m. and 3 p.m. CET).

### 3.2.8 PRICING

The transaction fee for a EURO1 payment is based on the number of payments sent by participants in accordance with the incremental scale below.

Daily average number of transactions during the invoice period	Charge per transaction
from 1 to 1,500	€0.15
from 1,501 to 2,500	€0.10
from 2,501 to 4,500	€0.06
from 4,501 to 5,500	€0.04
from 5,501 onwards	€0.03

The annual operating charge of the processing agent (SWIFT) and the operating costs of the EBA Clearing Company are shared among the EURO1 participants on a quarterly basis in accordance with a special distribution key.

### 3.2.9 STATISTICAL DATA FOR EURO1

The turnover figures for EURO1 have steadily increased since January 1999. The daily average number of transactions in EURO1 in 1999 was 67,883, with a total value of €170.7 billion. In 2006 the average number of transactions reached 187,685 payments per day, with a total value of €189.7 billion.

### 3.3 THE CLS SYSTEM

The traditional settlement of foreign exchange trades was via correspondent bank relationships, where the payments of the two currencies would normally not be made simultaneously, in particular because of (often fairly substantial) time zone differences. In such an environment, where the debiting and the crediting of the two legs of an FX transaction are not synchronised,<sup>20</sup> FX settlement exposures of banks and the systemic risk attached to them could last for up to two business days (and it could be another one or two days before banks know with certainty that they have received the currency that they bought). In some cases, such exposures (even to a single counterparty) could exceed the bank’s capital. The well-known example of the impact of FX settlement exposures in a correspondent bank environment with time zone differences is the case of Bankhaus Herstatt. This German bank was an active participant in the FX market. In June 1974 the German banking supervisory authority ordered the bank into liquidation after the close of the German payment system. The counterparties of Bankhaus Herstatt had irrevocably paid the Deutsche Mark leg of their USD/DEM transactions via the German payment system, but after Bankhaus Herstatt’s collapse its US correspondents suspended the payment of the

<sup>19</sup> This is based on §328(1) of the German Civil Code.

<sup>20</sup> This unsynchronised settlement of the two legs of an FX transaction creates FX settlement risk. This risk is generally defined as the risk that one party to an FX transaction will transfer the currency it is selling but not receive the currency it is buying. Foreign exchange settlement exposure represents the amount at risk when a foreign exchange transaction is settled. This equals the full amount of the currency purchased and lasts from the time that the payment instruction for the currency sold can no longer be cancelled unilaterally until the currency purchased is received with finality.

US dollar leg of the transactions, thus subjecting Bankhaus Herstatt's counterparties to substantial losses. In the literature, FX settlement risk is therefore often referred to as "Herstatt risk" or "time zone risk".

### 3.3.1 INSTITUTIONAL SET-UP

Throughout the 1980s and 1990s the G10 central banks conducted important analysis on settlement risk related to the fast-growing volumes and values of FX transactions and outlined a strategy to reduce it.<sup>21</sup> Meanwhile, market participants, industry groups and central banks have made significant efforts in taking measures and developing solutions to reduce FX settlement risk. The banking industry developed several initiatives, e.g. two multi-currency netting projects, ECHO and Multinet. When the CLS project was set up in 1997, ECHO and Multinet were merged with the CLS development because banks preferred to concentrate their FX settlement risk reduction efforts in one project. On 9 September 2002 the Continuous Linked Settlement system, a clearing and settlement system that settles FX transactions on a payment-versus-payment basis, went live.

The CLS system is owned by the CLS Group, which is organised as follows: CLS Group Holdings AG was formed to create, develop and provide the operational, technical and regulatory resources needed for the CLS system; this entity is the group holding company of CLS UK Intermediate Holdings Ltd, CLS Bank International (CLS Bank) and CLS Services Ltd; CLS Group Holdings AG is incorporated under the laws of Switzerland and is regulated by the Federal Reserve System as a bank holding company in the United States. At the outset 67 major financial institutions, located in 17 countries, were shareholders, one-third of which came from the euro area. At end-2006, CLS Group Holdings AG was owned by 71 of the world's largest financial services institutions located throughout the US, Europe and the Asia/Pacific region. Each shareholder has an equal say in the governance of the Group and each is eligible to apply for membership of CLS

Bank. CLS UK Intermediate Holdings Ltd is the intermediate holding company of the CLS Group and is incorporated under the laws of England and Wales. From a governance perspective, it is a "shell" company. Its main role is to provide certain corporate services to CLS Bank and its affiliated companies (i.e. finance, human resources, audit and communications). CLS Bank, which is a wholly owned subsidiary of CLS UK Intermediate Holdings Ltd, is an independent Edge corporation organised under the laws of the United States. It is regulated and supervised by the Federal Reserve Bank of New York. CLS Bank was granted a specific banking licence in 1999 limiting its field of activity to engaging in FX settlement activities. This design of CLS Bank as a single-purpose bank ensures that CLS Bank cannot expose itself to the risks that ordinary banks take by investing deposits in interbank or customer loans, and that such risks do not impinge on its activities as a settlement bank. CLS Services Ltd is a company organised under the laws of England and Wales and located in London. It provides CLS processing services and operational and back-office support to CLS Bank and its affiliated companies.

### 3.3.2 PARTICIPATION AND ACCESS CRITERIA

There are several parties involved in the CLS system, each performing different functions: settlement members, user members, third parties, nostro agents and liquidity providers.

Settlement members can submit instructions for the settlement of FX trades directly to CLS Bank on behalf of themselves and their customers. Once these instructions are validated, they can be settled provided that they pass the required risk management tests (as described in the section on settlement procedures). Settlement members hold an account in each

<sup>21</sup> See the CPSS report entitled "Settlement Risk in Foreign Exchange Transactions" (also known as the "Allsopp Report"), BIS, March 1996, and the CPSS report entitled "Reducing Foreign Exchange Settlement Risk: a Progress Report", BIS, July 1998. In order to support the strategy of the G10 central banks, the Basel Committee on Banking Supervision issued its report on "Supervisory Guidance for Managing Settlement Risk in Foreign Exchange Transactions", BIS, September 2000.

eligible currency with CLS Bank. They are responsible for funding these accounts and are entitled to receive amounts owed to them from CLS via RTGS accounts with the respective central banks. Settlement membership is the most common form of participation in the CLS system. To become a settlement member, a participant must be a CLS shareholder, operate under an appropriate supervisory regime and fulfil strict financial and operational requirements.

User members must also be CLS shareholders and can submit instructions directly to CLS. However, user members do not maintain accounts with CLS Bank and must therefore settle their transactions via a settlement member they have selected. User membership may be sought by banks which do not wish to manage their central bank liquidity so actively or which do not have the necessary infrastructure to do so.

Both settlement members and user members can provide (trademark) CLS settlement services (third-party services) to their customers (third parties), i.e. other banks, fund managers, non-bank financial institutions and corporations. Third parties do not have a direct relationship with CLS Bank. They must select a settlement or user member which must handle all their instructions and financial flows, which are consolidated in the CLS system. The terms on which settlement and user members can act on behalf of third parties are governed by bilateral contractual arrangements.

For currencies in which settlement members do not have a central bank account or cannot provide sufficient liquidity, they can employ nostro agents to make and receive CLS payments on their behalf. Nostro agents do not have to be CLS shareholders, but in practice most of them are. Since nostro agents often provide their services to many different settlement members, they have an important role to play in the functioning of the CLS system. They may face significant liquidity demands in cases where many of the settlement members to which they

provide services are in a debit position. Sufficient access to liquidity is therefore indispensable for nostro agents.

With regard to the function of liquidity providers, see Sections 3.3.6 and 3.3.7.

### 3.3.3 RULES OF THE SYSTEM

The design of the CLS system is fairly complex. In order for the system to operate properly, the participants (see previous section) must strictly fulfil their responsibilities as defined in the system rules. These rules also define the risk management features of the system, the operational timeline and the procedures to be followed in the event of a failure by a settlement member to fund its short positions (see the following sections). The system rules and procedures are governed by English law. CLS Bank account contracts are governed by New York law. The RTGS accounts held by CLS Bank and the settlement members are subject to the laws and regulations of the jurisdiction under which the respective national RTGS system is operated.

### 3.3.4 TYPES OF TRANSACTION HANDLED

CLS currently settles payment instructions related to FX trades executed in four main instruments: spot instruments, forwards, option exercises and FX swaps. In the near future CLS plans to also offer a complete end-to-end service from execution (matching and confirmation) to settlement of cash flow positions for non-deliverable forwards (NDFs) and for OTC FX option premiums. For instructions related to an instrument to be eligible for settlement by CLS, all related payments must be denominated in a CLS-eligible currency. Having initially started with seven major currencies, including the euro, the US dollar and the Japanese yen, CLS currently settles trades in 15 currencies around the globe: the Australian dollar, Canadian dollar, Danish krone, euro, Hong Kong dollar, Japanese yen, Korean won, New Zealand dollar, Norwegian krone, pound sterling, Singapore dollar, South African rand, Swedish krona, Swiss franc and US dollar.

### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

A key distinction is made between the settlement of FX trades across the books of CLS Bank and the funding by settlement members of their accounts. There is no netting in the settlement process. CLS settles each FX trade individually (gross) on a PvP basis in its own books, meaning that the debiting of one currency and the crediting of the other currency occurs simultaneously on the currency accounts that each settlement member holds in each eligible currency in the books of CLS Bank. CLS takes over the function of a trusted third party, making sure that the parties to the FX trade will either be paid the currency they expect to receive or be refunded the currency they delivered. The function of CLS in the settlement process is strictly limited to that of a settlement agent. CLS does not at any point become a counterparty of the participants.

On the funding of their positions via central bank RTGS accounts, CLS participants do benefit from a netting effect. For all the trades that participants send to CLS for settlement, CLS calculates only one net short position per eligible currency. Since participants conduct transactions in different currencies, with different maturities and with different counterparties, the net short positions resulting from the settlement of FX trades in a single clearing and settlement system are significantly smaller than the short positions resulting from settlement via traditional settlement mechanisms and vary from 1% to 2% of the total amount settled (after the effect of the inside/outside swap arrangement explained later).

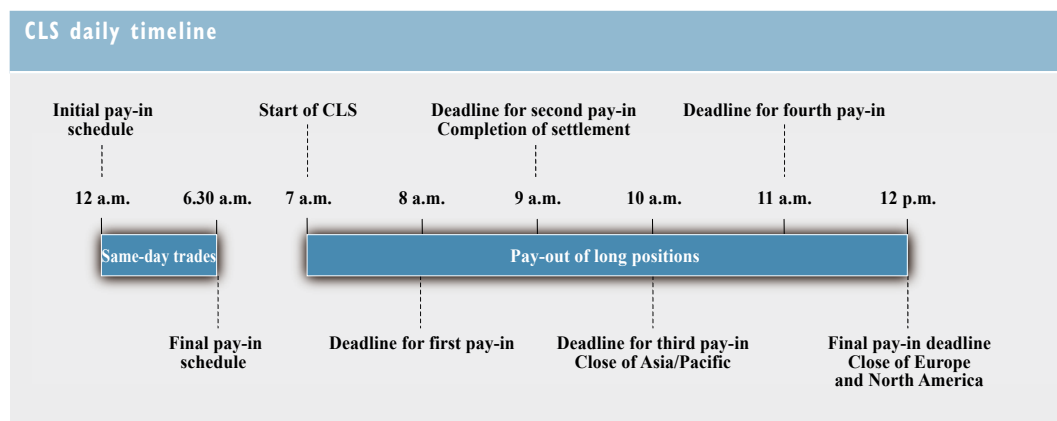
In general, settlement members first pay funds into CLS's central bank accounts in the currencies in which they have an overall short position by predetermined deadlines. Once these pay-ins have been received, CLS starts the settlement process in its own books. In contrast to the pay-ins, CLS does not pay out its dues in accordance with a specific schedule. Long balances are paid out as soon as possible, but only if CLS's central bank account in the relevant currency has sufficient funds and if

settlement members maintain a net overall positive account balance after the pay-out has been made. As a general rule, Asia/Pacific currencies are paid out first, since these RTGS systems close first, and large balances are paid out before small balances. A pay-out algorithm is used to calculate the pay-outs in a way that limits the drainage of liquidity in the relevant RTGS systems. Under normal circumstances, settlement members will have zero balances in their CLS Bank accounts at the end of the CLS business day, and CLS Bank will have no funds in its central bank accounts.

Settling FX trades in 15 currencies implies that CLS settlement members must make their FX settlement payments (which are potentially of substantial value) in a very limited time frame and by predetermined deadlines posing some challenges for the liquidity management of banks. This is mitigated by the inside/outside swap arrangement explained later. European settlement members benefit slightly from this timeline, since CLS operates at a time (7 a.m. to 12 noon CET) when European financial markets are open and fully liquid. In the Asia/Pacific region CLS operates very late in the business day (i.e. when the northern hemisphere is on winter time, CLS closes at midnight local time in New Zealand), and in North America it operates at night (1 a.m. to 6 a.m. Eastern Standard Time).

### 3.3.6 SETTLEMENT PROCEDURES

On a normal day the more detailed timeline would adhere to the following steps: settlement and user members submit their FX settlement instructions directly to CLS for processing before the actual settlement day of CLS Bank starts. The industry has agreed a best practice whereby this happens within two hours of the trade. CLS matches the instructions of the two parties that have agreed on an FX trade and, on the basis of these settlement-eligible instructions, calculates the long/short positions of the settlement members in the currently 15 eligible currencies. At 12 midnight CET CLS establishes an initial pay-in schedule for each settlement member listing the preliminary



positions and pay-ins in each currency and sends these pay-in schedules to the settlement members. The initial pay-in schedule that CLS calculates for each settlement member is based on the positions that are projected to build up after all trades from this settlement member (and user members and third parties) are settled. It is calculated in such a way that all trades can be settled by 9 a.m. CET. CLS divides the short

positions into various instalments (pay-ins) that must be funded by the respective pay-in deadlines. The pay-ins are not divided equally, as the CLS risk management procedures (i.e. the short position limits for each currency, the aggregate short position limit for all currencies and the need for a net overall positive value for this settlement member at all times) must be respected. (For details regarding the

### INSIDE/OUTSIDE SWAPS

Settlement members' funding payments for the CLS system are highly time-critical and can grow fairly large at times. In order to reduce this time-critical liquidity demand, banks have created a tool for swapping CLS positions for positions outside CLS. Banks buy the currency in which they have a considerable short position in CLS and sell a currency in which they are long in CLS. In order to do so, CLS runs an algorithm that identifies a settlement member that has the opposite needs and issues a schedule of "inside" trades to be settled the same day in CLS. This is based on credit limits set in advance by each of the settlement members. Since the deal changes the FX positions of both banks, the two settlement members reverse the deal outside CLS and settle the deal on the same day. These transactions, called "inside/outside swaps", have the advantage of allowing settlement members to use the entire business day to raise sufficient liquidity to make this very large payment. However, they do have the drawback of reintroducing FX settlement risk for the outside leg of the swap.

Inside/outside swaps are not used by all settlement members, primarily because it is a tool that can only be used at a very late stage (between the issue of the initial pay-in schedule and the issue of the final pay-in schedule) and because of the investment and operational capabilities needed (it requires banks to operate on almost a 24-hour basis). Moreover, some members do not use it because of risk considerations. For these reasons, some settlement members have developed an alternative tool whereby they post their CLS positions in the different currencies on a Reuters screen on the day before settlement and try to find solutions (e.g. outright trades, forward trades or swaps) to reduce their liquidity requirements on the settlement day.

CLS risk management procedures, see the section on credit and liquidity risk.) Participants can review net pay-in totals at any time before the settlement day.

After 12 midnight CET settlement members can bilaterally agree on additional trades to be settled on that day or to cancel trades that had been submitted at an earlier stage. These transactions are primarily conducted in order to reduce pay-in requirements. Inside/outside swaps are currently the most common type of same-day trade.

At 6.30 a.m. CET CLS issues the final pay-in schedule, which takes into account the trades agreed upon since the issuing of the initial pay-in schedule. This final pay-in schedule lists the final minimum pay-ins which settlement members have to make in each currency by the respective pay-in deadlines. As was the case for the initial pay-in schedule, final pay-ins are also calculated in such a way that all trades are settled in the books of CLS Bank by 9 a.m. CET. Consequently, the scheduled 9 a.m. CET pay-ins tend to be larger than the other instalments. Pay-ins in the Asia/Pacific currencies by 10 a.m. CET must be scheduled sufficiently large to enable CLS to complete the pay-outs in these currencies, since the national RTGS systems close soon afterwards.

At 7 a.m. CET the CLS system starts its daily operations. Settlement members start making their funding payments, and CLS starts the settlement process. CLS has implemented several procedures to help the system to complete settlement of the trades submitted to it and to ensure that settlement members receive the currency of the transactions they have settled via the system in the event that a settlement member fails. Trades that cannot immediately settle are put in a waiting queue and continually revisited until they settle. Every transaction is checked against three different risk management criteria and settled only if all three checks are passed. If these criteria are not met for each side of the trade, the CLS Bank will not settle the FX transactions.

If a settlement member fails to make its first pay-in, CLS sends a pay-in call for account value immediately after the 8 a.m. CET deadline. At the same time it temporarily suspends pay-outs from the account of the settlement member until it has covered the shortfall. If, owing to this pay-in failure, some transactions in the settlement queue remain unsettled by the 9 a.m. CET settlement completion time, CLS issues pay-in calls for settlement to those (non-failing) settlement members whose instructions have not yet been completely settled. Should any settlement member still be in a debit position when a currency is about to close (10 a.m. CET for Asia/Pacific currencies and 12 noon CET for European/North American currencies), CLS issues a pay-in call for currency close to any such settlement members asking them to make up the shortfall. If that call is not honoured, CLS can resort to liquidity providers in the relevant currency, asking them to swap this currency against any other currency on the CLS accounts. Upon receipt of this liquidity, CLS completes the pay-outs by transferring any amounts still due to the settlement members. On the next business day, CLS reverses the swap with the liquidity provider, and the failing settlement member must bear the costs of that transaction (plus penalties).

### 3.3.7 CREDIT AND LIQUIDITY RISK

The CLS system has been designed to eliminate FX settlement risk. It achieves this by applying a strict risk management regime and by settling trades on a PvP basis in its own books. In order to strike an appropriate balance between credit risk, liquidity risk and settlement efficiency, CLS allows participants to incur debit balances on the condition that these debit balances are always “collateralised” by corresponding credit balances in other currencies.

First, there is the maximum debit balance which a settlement member is allowed to incur in any one currency. This is called the short position limit and varies from currency to currency. For each currency this limit is the same for all settlement members. For the euro, it is set at €1 billion. The value of the short position limit



depends on the amount of liquidity that has been committed by liquidity providers in the currency concerned and is calculated in a way that ensures sufficient liquidity even if the participant with the largest debit position in that currency failed to honour its obligation.

Second, there is the maximum total debit balance that a settlement member is allowed to incur when adding the debit balances in all currencies. This is called the aggregate short position limit and is defined individually for each settlement member in accordance with the size of its Tier 1 capital and its short-term credit rating. The higher the capital and the better the short-term credit rating, the higher the aggregate short position limit. The maximum aggregate short position limit allowed for any settlement member is the equivalent of USD 1.5 billion.

Third, all settlement members are required to maintain a net positive overall account value with CLS Bank at all times. This is a logical consequence of the fact that CLS is not allowed to extend credit to its settlement members. In order to protect CLS against market risk (i.e. the risk that credit positions in one currency that CLS holds as collateral for a settlement member's debit position in another currency might depreciate owing to market fluctuations), haircuts are applied to debit and credit balances in all CLS accounts.

Liquidity providers play a crucial role in the event that a settlement member fails to honour its pay-in obligation to cover its short positions. In such cases, CLS Bank will be short of whichever currency the failing settlement member was supposed to pay in, and CLS Bank will not be able to complete pay-outs in that currency to the other settlement members. In order to complete pay-outs, CLS Bank will ask those liquidity providers which have made a commitment to provide liquidity up to a certain amount in the currency concerned to swap the needed currency for the currencies in which the failing member has a positive balance. Since CLS Bank tries to obtain liquidity from the failing settlement member for as long as

possible in order to complete its normal operations, liquidity providers are only called in very late in the CLS day. Liquidity providers must therefore be able to respond to CLS Bank's requests very quickly. After the liquidity provider has agreed to the currency swap with CLS Bank, it must make the relevant liquidity available via the relevant RTGS system within 20 minutes. CLS Bank normally requires at least three liquidity providers per currency. There are currently six liquidity providers for the euro. However, for smaller currencies, e.g. for the Hong Kong dollar or the Korean won, there may be only two liquidity providers.

As outlined in the paragraphs above, nostro agents and liquidity providers play a crucial role in the operation of the CLS system. These must ensure particular operational capacity and sources of liquidity that can be used in the event of unexpected, increased demand. For these reasons, the ECB requires nostro agents and liquidity providers in euro to have direct access to TARGET and unrestricted access to Eurosystem intraday and overnight credit. These conditions can only be met by institutions that are located in the euro area.

In CLS, losses can only occur if a settlement member fails and, at the same time, there is an adverse movement of exchange rates against the currencies in which the failing participant has a credit balance in excess of the currency haircuts. As explained above, CLS uses the credit positions of a settlement member in one currency to collateralise its debit position in another. Should the currency of the credit position depreciate beyond the level of the haircuts against the currency of the debit position, the collateral currency may not be sufficient to close out the debit position. In such a case, any resulting loss would be apportioned to the settlement members that traded with the failing settlement member on the day when it failed. In the extreme case of a failure by more than one settlement member or liquidity provider, the committed liquidity facilities may not be sufficient to complete the pay-outs. In such cases, CLS may resort to non-

committed credit lines that it has arranged with some institutions, pay out alternative currencies that it has in its central bank accounts, or carry these balances over to the next business day and exchange them for the correct currencies on that day.

### 3.3.8 PRICING

CLS is a not-for-profit utility and covers its costs largely through a transaction fee applied to all instructions settled, amended and rescinded. In January 2006 CLS received sufficient volume to make it possible to charge all settlement members at or below a target price set in advance of CLS going live. Since then there have been further changes in pricing to incentivise new volume growth. Overall, prices will continue to fall as volume increases.

### 3.3.9 STATISTICAL DATA FOR CLS

The settlement members have supported the start of CLS by quickly increasing the number and value of FX trades they conduct through the system. In December 2002 the daily value of FX trades settled in CLS was around USD 535 billion. In December 2006 CLS settled an average of 289,999 payment instructions each day, with an average gross value in excess of USD 3.3 trillion.

As at end-2006 the peak value and volume settled on any one day was USD 6.62 trillion and 529,318 payment instructions, both on 20 December 2006.

The euro is the second most settled currency in CLS, accounting for 19% of all FX trades settled by value. The US dollar share is 46%.

## 3.4 CROSS-BORDER RETAIL PAYMENT SYSTEMS

Most retail payments are cleared at the domestic level. The country chapters of the Blue Book provide further details on national arrangements for clearing retail payments. The situation with regard to cross-border retail payment systems within the euro area is not yet as developed as that for cross-border large-value payment

systems. Despite the introduction of the euro, cross-border retail payment services have not yet reached the service levels of domestic retail payment services. Significant differences in quality, efficiency and price between domestic and cross-border services are still preventing people from reaping the full benefits of the single currency.

The only retail payment systems which currently cover the whole of the euro area and which are open to all banks are the EBA's STEP1 and STEP2 arrangements. The SEPA project of the European banking industry (see Section 2.2) changes the concept of domestic and cross-border payment systems, as it aims to create a single euro retail payments area.

### 3.4.1 THE STEP1 SYSTEM

#### 3.4.1.1 Institutional set-up

To complement the EURO1 system, the EBA developed a solution for handling retail and commercial payments. This solution is called STEP1 and is part of the EBA's STEPS (Straight Through Euro Payment System) programme, which is designed to meet the requirements of EU legislation and to offer a full range of euro payments in a pan-European environment. The STEP1 arrangement entered into operation on 20 November 2000. It is managed and operated by the EBA Clearing Company.

STEP1 has enabled a reduction in the execution time and pricing of cross-border retail payments in euro. Furthermore, STEP1 has fostered the use of industry standards for messaging in order to enhance straight-through processing (STP) within banks, as well as the adoption of European business practices in the execution of cross-border retail payments in euro.

#### 3.4.1.2 Access criteria and participation in the system

Access to the EBA Clearing Company's STEP1 arrangement is open to all banks that have a registered office (which may include a subsidiary) or a branch in a Member State of the EU and are full members or user members

of the EBA. Admission to STEP1 involves neither a minimum credit rating nor a minimum funds requirement. However, the STEP1 applicant must demonstrate, during a fixed period of testing and training, that it is technically and operationally capable of operating in STEP1.

Participation in STEP1 is open to both EURO1 participants and other banks (“STEP1 banks”) that are not EURO1 participants but use a EURO1 participant as a “settlement bank”. In December 2006 there were 114 STEP1 banks.

#### **3.4.1.3 Types of transaction handled**

STEP1 processes individual credit and debit transfers. Amounts are typically below €50,000, but there is no actual limit, other than the sending/receiving capacity of the STEP1 bank(s) involved (see Section 3.4.1.7).

#### **3.4.1.4 Operation of the transfer system**

The processing of payment orders in STEP1 starts at 7.30 a.m. CET. The sending cut-off time is currently fixed at 2 p.m. CET. Payment orders sent after the cut-off time for value on that day are rejected. A STEP1 bank’s position resulting from processed payment orders must be covered by liquidity provided by a EURO1 participant. Each STEP1 bank squares its daily balance via a EURO1 participant of its choice (its “settlement bank”), which provides the STEP1 bank with the liquidity it requires in STEP1. The balance which is calculated for a STEP1 bank for a particular value date is settled by its settlement bank within the EURO1 system.

#### **3.4.1.5 Transaction processing environment**

STEP1 uses the existing infrastructure of the EURO1 system without being subject to the risk management requirements of the large-value segment. Participants in STEP1 are directly connected to all EURO1 and STEP1 participants.

In order to distinguish STEP1 payments from EURO1 payments, the former are identified with the specific three-letter tag “ERP” (Euro

Retail Payment) in field 103 of the SWIFT message header. A payment with an “ERP” tag is automatically captured by SWIFT, which forwards a partial copy to the EURO1 platform.

STEP1 processes credit transfers (SWIFT message types MT 102 (for customer-related payment orders between banks participating in a “Closed User Group”), MT 103, MT 202 (mainly for payment orders between a STEP1 bank and its settlement agent) and MT 400), as well as direct debits (MT 104 and MT 204).

STEP1 does not process batch files (other than the MT 102 messages) and does not provide a central sorting function.

#### **3.4.1.6 Settlement procedures**

Since STEP1 applies the principle of a “zero debit cap”, each STEP1 bank must square its daily balance in STEP1 via its settlement bank. In order to do so, each STEP1 bank receives, shortly after the sending cut-off time, a message with the remaining potential STEP1 balance that has resulted from the payment messages sent and received. The settlement bank is also notified about this balance. If the STEP1 bank has a negative potential STEP1 balance at the sending cut-off time, the STEP1 bank must arrange funding with its settlement bank. After the settlement bank has made the funding payment, the remaining payment orders of the STEP1 bank can be processed, bringing their positions to zero.

If, under exceptional circumstances (e.g. in the event of major technical failures or if expected payments have not been received), the funding payment only partially covers the negative balance, one or more payments sent by the STEP1 bank will be held in a queue. If these STEP1 payment orders are not covered by a second funding payment, they are automatically carried over to the next settlement day.

#### **3.4.1.7 Credit and liquidity risk**

As it cannot have a negative position, a STEP1 bank will obtain, from its settlement bank, its

sending/receiving capacity in STEP1 in the form of a credit cap with a minimum of €1 million and a maximum of €25 million (since October 2006). If a STEP1 payment order exceeds the amount of the cap of the sending bank or the receiving bank, this payment order is rejected. Therefore, any amount exceeding €1 million must only be sent after prior arrangement with the receiving bank.

The settlement of EURO1 balances takes place at the ECB shortly after 4 p.m. CET on day D. STEP1 payment orders are irrevocable as soon as they are processed on the settlement day.

#### 3.4.1.8 Pricing

The transaction fee for a STEP1 payment is based on the number of payments sent by participants in accordance with the incremental scale below.

Daily average number of transactions during the invoice period	Charge per transaction
from 1 to 200	€0.39
from 201 to 400	€0.32
from 401 to 1,000	€0.30
from 1,001 onwards	€0.28

A minimum billable amount of €750 per quarter applies (representing a daily average of 30 payment messages).

The joining fee for STEP1 is set at €16,500 (including the price of an Interactive Workstation).

#### 3.4.1.9 Statistical data for STEP1

The turnover figures for STEP1 have steadily increased since the year of its inception. The daily average number of transactions in STEP1 in 2001, i.e. its first full year of operation, was 4,374, with a total daily average value of €44 million. In 2006 the daily average number of transactions increased to 23,206, with a total daily average value of €625 million. The average commercial payment in STEP1 (MT 103) had a value of approximately €15,200.

## 3.4.2 THE STEP2 SYSTEM

### 3.4.2.1 Institutional set-up

In order to allow the execution at low cost of cross-border euro payments compliant with Regulation (EC) No 2560/2001 on cross-border payments in euro, the EBA developed the first pan-European automated clearing house (PE-ACH) for bulk payments in euro – STEP2.

The STEP2 system has been developed by the EBA in cooperation with SIA SpA, an Italian-incorporated payment service provider, as a technology partner (providing computing facilities) and SWIFT as a messaging partner (providing messaging infrastructure).

STEP2 is in fact a payment processing service which provides the sorting and forwarding of intra-EU and national bulk payment orders denominated in euro. It entered into operation in April 2003 and is managed and operated by the EBA Clearing Company.

### 3.4.2.2 Rules of the system

The rules of the system provide that STEP2 positions are settled finally in EURO1, meaning that the settlement is exclusively governed by the rules of EURO1 (i.e. the Single Obligation Structure). Since EURO1 is designated under the Settlement Finality Directive, STEP2 also benefits from the protection of the SFD.

The rules of the system also stipulate that neither STEP2 files nor portions of those files may be revoked after they have been sent and that STEP2 participants (including the prefund participants in EURO1) cannot cancel or revoke the settlement payment instructions generated by the STEP2 system and channelled automatically to and processed in EURO1 (i.e. either directly or via STEP1). However, prefund participants can fail to provide funds (via TARGET) to cover their debit position in EURO1 (which results from their outgoing STEP2 payments), in which case (some of) the settlement messages would not be accepted by EURO1 and all STEP2 files from such a prefund participant would be cancelled.

### 3.4.2.3 Participation and access criteria

STEP2 participation is open to all financial institutions having their registered office or a branch in the EEA.

The banks wishing to participate in the system have two options as regards connection: either as direct or as indirect participants. Direct participants have the right to send and receive STEP2 files and are known to STEP2 via their BIC. Indirect participants are, upon inclusion in the STEP2 directory, recognised by the STEP2 system as addressees of payment instructions. The relationship between a direct participant and an indirect participant is exclusively governed by their respective bilateral arrangements, and direct participants are responsible for ensuring that the indirect participants comply with the STEP2 system rules.

STEP2 has two levels of direct participation:

- (i) settling participants, i.e. sending directly to and receiving directly from the system and settling directly as a member of EURO1;
- (ii) non-settling participants, i.e. sending directly to and receiving directly from the system and settling through a settlement bank which is a EURO1 participant.

Any participant or sub-participant in EURO1 or STEP1 can be a direct STEP2 participant.

Admission rules and audit procedures are applicable to the STEP2 applicant's technical and operational ability to operate in the system, as well as to its relationship with its EURO1 settlement bank where applicable.

STEP2 files may include payment orders directed to entities other than direct or indirect STEP2 participants (third-party recipients). In the event that the recipient of a payment is not reachable via a direct or indirect STEP2 participant, the sending bank in STEP2 can address the payment to the entry point bank in the recipient's country.

An entry point bank for a country is a direct STEP2 participant which agrees to be designated as such by any sending participant choosing this direct STEP2 participant as its entry point for that country. This means that any payment order addressed to a bank which is established in that country and unknown to STEP2, either as a direct participant or as an indirect participant, is then routed by STEP2 to that entry point bank. The entry point bank ensures its transmission to this third-party recipient, e.g. via a national payment system. Such third-party recipients have no rights or obligations vis-à-vis the STEP2 system.

For those direct STEP2 participants that do not have access to EURO1 or STEP1, the EBA Clearing Company created in November 2003 the possibility of participating in EURO1 on a prefunded basis, allowing these banks to transfer liquidity from TARGET as coverage for the STEP2 settlement payments they are required to make in EURO1.

As at December 2006 STEP2 had 107 direct participants and more than 1,620 indirect participants sending an average of more than 259,000 transactions per day through the system. STEP2 then automatically routes those transactions to its community of participant banks throughout the EU and the EEA.

### 3.4.2.4 Types of transaction handled

STEP2 processes high-volume, low-value (up to €50,000 per transaction) and non-time-critical commercial and retail payment orders sent to the system in batches of files through a secure network.

In phase one of the implementation, STEP2 has processed only cross-border credit transfers, but a cross-border direct debit service is being developed for implementation in line with the SEPA direct debit rulebook by January 2008.

In order to ensure STP, the payment messages are formatted in accordance with agreed STEP2 technical standards. They are based on the SWIFT MT 103+ message structure (data set).

STEP2 may also support files formatted in XML using the SWIFT bulk payment standard.

In addition to the technical processing features, business practices are being introduced in relation to the handling of payments in a wider, end-to-end approach. In accordance with the requirements of Regulation (EC) No 2560/2001 on cross-border payments in euro, each payment instruction must bear, inter alia, the IBAN of the beneficiary and the BIC of the beneficiary's bank in order to comply with STEP2's STP criteria.

#### **3.4.2.5 Transaction processing environment**

The STEP2 central system is hosted at SIA's operational centre.

Two systems are provided: a primary system and a secondary system. Both systems benefit from business continuity arrangements. A changeover from the primary to the secondary site can take place with no risk of undetected data loss or duplication.

As transaction volumes increase, a third site will be added.

Payments for processing can be transmitted to STEP2 via the participant system (provided by the operator) or using the banks' own systems. Thus, participants may choose either to enhance their payment systems to support STEP2 file standards or to employ the STEP2 participant system to perform translation from existing standards. The STEP2 participant system also supports a single payment interface with the banks' back-office payment systems, so that banks can send individual MT 103+ payments, which the STEP2 participant system collects in files for sending to STEP2.

Direct participants can exchange files with the STEP2 central system and perform enquiries over two secure network connections: SWIFTNet and SIANet. SWIFTNet is the preferred communication protocol for exchanging files with the STEP2 central system, and SIANet is

a proprietary IP interbank communications network.

The business operation of the system is controlled by the EBA Clearing Company in a manner similar to that employed for EURO1/STEP1. A secure business control terminal is provided at the EBA Clearing Company's operational centres over a SIANet connection, allowing the EBA Clearing Company's operations staff to monitor and control the business processing of the system.

The technical operation of the system is controlled by SIA using terminals directly connected to the STEP2 central system. An English-speaking helpdesk is also provided by SIA to assist direct participants with technical enquiries.

#### **3.4.2.6 Clearing and settlement procedures**

The STEP2 service is designed to ensure one or more settlement cycles per value date. Each settlement cycle consists of a sending cut-off time, a settlement time, and a settlement cut-off time.

However, phase one of STEP2 has only one settlement cycle per day, which allows participants to send files up to 10 p.m. CET on day D-1. These transactions are settled at 7.30 a.m. CET at the start-up of EURO1 on D, after which the participants receive incoming payment files, i.e. by 8.30 a.m. CET on D. The files for value on day D received after 10 p.m. CET on day D-1 are rejected, but in a future phase, participants may be able to send files at any time.

During phase one STEP2 is operational on all TARGET days. On non-TARGET days STEP2 processing ceases at 12 midnight CET at the end of the previous TARGET day and recommences at 12 midnight CET at the beginning of the next TARGET day.

Files sent to the system before the sending cut-off time are opened and validated for the correct content of key fields in the payment instructions,



in accordance with the criteria established, in order to ensure STP. Individual payment instructions in a batch failing the validation process are rejected and returned to the sending participant indicating the reason. Payment instructions contained in one file (or in several files, as the case may be) sent by a participant and meeting the validation criteria are sorted into bilateral sub-files, i.e. one sub-file per addressed participant, in accordance with the routing criteria established by the participants through a central routing directory. For each sub-file resulting from the sorting of the payment instructions sent by one participant, STEP2 establishes the amount of the bilateral payment obligation between the sending bank and the addressed participant. This amount represents the total value of the payment instructions contained in the sub-file. STEP2 generates, for each bilateral payment obligation, a settlement payment message for processing in EURO1. STEP2 sends the settlement instructions in batches to EURO1/STEP1 (i.e. either directly to EURO1 or via STEP1), using the SWIFT FIN network and using a specially developed MT 298 message. These messages include the cut-off time by which EURO1/STEP1 is expected to have processed all of the instructions.

These messages are then automatically queued for processing the next day with the highest possible priority, i.e. at 7.30 a.m. CET on day D (when the full credit and debit caps within the EURO1 system are still available). STEP1 banks (or direct non-settling participants) are responsible for ensuring that special arrangements are in place to facilitate smooth processing of their settlement payments during EURO1 start-up.

Upon processing of the settlement payment in EURO1, a confirmation message is sent by EURO1 to STEP2. Receipt of this message acts as the trigger to release the related sub-file into the outbox of the addressed participant. At the settlement cut-off time STEP2 sends to each participant a file including all sub-files addressed to that participant and settled, i.e. the content of that participant's outbox, together

with relevant data for the audit trail and for tracing settlement payments. The sending bank receives a report on payment instructions settled and forwarded, invalid instructions and instructions not forwarded because of non-settlement, as well as data for the audit trail and reconciliation of settlement payments with the related sub-files.

In cases where the processing of all settlement instructions is not completed within EURO1/STEP1 before the STEP2 settlement cut-off (currently set at 8 a.m. CET on day D, with the possibility, since October 2006, of an extension until 9 a.m. CET to allow for the resending of settlement instructions by STEP2 to EURO1 between 8 a.m. and 9 a.m. CET in the event that certain settlement instructions were not processed at 8 a.m. CET), the unprocessed settlement instructions within EURO1/STEP1 and the related payment instructions within STEP2 are cancelled. The unprocessed STEP2 payment instructions are returned by the STEP2 central system to the sending direct participant. A file of cancelled payment instructions is returned for each file transmitted to STEP2 containing payment instructions that have been cancelled within EURO1/STEP1 (if any), including the sender's reference for the original file.

#### **3.4.2.7 Credit and liquidity risk**

All risk management is performed within EURO1/STEP1, according to the rules of those systems.

The STEP2 settlement cycle is timed to maximise the EURO1/STEP1 liquidity available to participants when STEP2 settlement is taking place; thus, it is very unlikely that settlement instructions from STEP2 to EURO1/STEP1 will not be successfully processed.

#### **3.4.2.8 Pricing**

The fees charged in connection with participation in STEP2 are: a connection fee, an annual fee and transaction fees. Owing to the fact that the EBA Clearing Company has no contractual or direct relationship with the indirect participants,

and indirect participants have a contractual relationship only with a direct participant, all fees in relation to indirect participants are invoiced to and payable by the direct participants.

Direct participants must pay a connection fee, and there is a minimum amount of transaction fees to be achieved on a quarterly basis. A reduced connection fee is charged for the connection of banks that are part of the group of an existing direct participant (“secondary direct participants”). Secondary direct participants must pay a separate annual fee.

The inclusion of indirect participants attracts a connection fee and an annual fee, which are invoiced to the direct participant.

Direct STEP2 participants have two options for the calculation of transaction fees. They can either pay on the basis of use or they can prebook a certain volume on a quarterly basis, in which case they benefit from reduced transaction fees.

#### **3.4.2.9 Statistical data for STEP2**

The turnover figures for STEP2 have steadily increased since April 2003. The daily average volume of payments processed in STEP2 in January 2004 was 57,324, with a total daily average value of €129,845 million. In December 2006 the daily average volume of payments increased to 368,301, with a total daily average value of €1.4 billion.

#### **3.4.2.10 Future developments**

The EBA Clearing Company, in conjunction with the EBA, is developing a Multi-purpose Pan-European Direct Debit service (M-PEDD) to support the upcoming launch of the SEPA direct debit scheme created by the European Payments Council. The system is planned to go live by the end of 2007, and its design will allow it to be extended to support domestic debit features or to support advanced features such as Electronic Bill Presentment and Payment.

STEP2 has been enhanced with a STEP2 domestic service, which will allow domestic payment traffic to be migrated to the STEP2 system, within the framework of the SEPA concentric model. This service will constitute the concentric layer that will facilitate the migration, starting from 2006, of national payments to the SEPA credit transfer scheme.

### **3.4.3 RETAIL CREDIT TRANSFER NETWORKS OPERATED BY BANKING GROUPS**

In addition to bilateral correspondent arrangements among banks, some networks have been established between groups of banks for the purpose of enabling customers to make low-value retail payments across borders.

#### **3.4.3.1 TIPANET**

TIPANET (Transferts Interbancaires de Paiements Automatisés) is a network of member banks from the cooperative banking sector which have set up an arrangement for the execution of cross-border bulk payments. The respective local payment systems can be accessed via the receiving correspondent banks. Cooperative banks from 9 countries set up an association called TIPA SC in 1993. TIPANET is in fact a network of 11 cooperative banks from 9 countries which ensures that retail payments can be made not only in Europe, but also overseas, namely in Canada, the United States and several countries in north and sub-Saharan Africa. In addition, some banks have established their own international correspondent networks, which apply the TIPANET standards without being members of TIPA Group SC. For example, the German cooperative banking association has an international clearing network with more than 25 partners in a total of 18 countries.

Each TIPANET member is free to seek out the most suitable international partners in the light of its business interests, its business traditions and its international trade relations, and is informed of the networks of the other TIPA SC shareholders using the same service.

TIPANET processes – in the currency of the destination country – credit transfers, direct debits and cheques, of which credit transfers account for the largest share of transactions processed. The maximum amount that can be transferred corresponds to the balance of payments reporting threshold in the recipient's country. The beneficiary should usually receive TIPANET payments in less than two business days.

The local correspondent collects all payment instructions and converts them into the TIPANET message format, which complies with the SWIFT MT 102+ message. The TIPANET format is sufficiently open to allow for the processing of credit transfers, as well as cheques. After collecting the payment orders, the local correspondent creates payment batches, which are then sent to the respective foreign correspondent, which will then automatically convert the data into its domestic format and process the payments in the relevant local payment system. The cut-off time for the exchange of files is 4 p.m. (local time of the receiving bank) on the day before processing. The beneficiary's account will, at the latest, be credited two days later.

The settlement of payments takes place via the existing reciprocal accounts, which the correspondents hold for each other (loro and nostro accounts). The conditions for settlement are agreed bilaterally between the banks concerned.

Fees are charged individually by each participant bank. The fees are often differentiated depending on the type of customer and the way in which the payment instructions are submitted (i.e. paper-based or in electronic form).

Currently the members send their maximum possible volume of credit transfers via TIPANET. Volumes are increasing, since several members are also sending direct debit files through TIPANET.

### 3.4.3.2 Eurogiro

Eurogiro was established in 1989 as a cooperative initiative between the postal and giro organisations to build a network for the exchange of cross-border payments. Eurogiro is run by Eurogiro Network A/S, established in February 1993 and based in Denmark. It is a limited company and is owned by 12 financial institutions.

In December 2006 the group consisted of 56 members in 49 countries, including all EU countries except Estonia, Lithuania, Malta and Cyprus. Not all participants belong to the postal bank sector. Around 20 commercial banks also act as access points in some countries.

In order to create additional value for its members, Eurogiro has entered into strategic partnerships with, inter alia, Visa, Western Union and the US Federal Reserve.

Eurogiro handles any commercial payments. The bulk of its business is in the area of low-value payments, but it can also process large-value payments, as there is no maximum limit on the amounts that can be transferred.

Eurogiro processes credit transfers and cash payments. As a standard, credit transfers should usually be credited to the beneficiary's account within four business days. The execution time can be reduced to two days – or even less – if the “urgent” option is chosen. In addition, cash payment orders can be processed and should be carried out within five business days. Semi-urgent cash payments are executed in two business days, and urgent cash payments only need a couple of minutes.

In general, transactions are sent directly from member to member in a decentralised way. SWIFT members can transmit payment transactions using SWIFTNet, either directly between themselves or to non-SWIFT members of Eurogiro via a Eurogiro hub. In general, all consistency, validation and compliance checks (risk control) are carried out by the sending institution, not by Eurogiro centrally.

Transactions are formatted in accordance with SWIFT standards and are then put in the unique Eurogiro envelopes. The network achieves a high level of straight-through processing in the interbank chain.

Eurogiro payments in most currencies are settled on a gross basis once a day bilaterally between the members concerned. It is normal practice for Eurogiro members to hold accounts with each other and to settle in the currency of the payment. The members agree bilaterally on the terms and conditions of the accounts (statements, interest, minimum deposit, etc.).

Since November 2001 it has been possible to settle transactions in euro with a single settlement agent, the Euro Settlement Service Provider (ESSP). Since October 2006 the same service has been available for US dollar payments (USSP).

### 3.5 CORRESPONDENT BANKING

In addition to IFTSs, correspondent banking arrangements represent another important channel for payment flows, even though these are, within the euro area, significantly less important than payment systems such as TARGET. In correspondent banking arrangements, one bank (the service-providing bank) provides a number of services to another bank (the customer bank), with an important part of these services being payment services. Correspondent banking services are primarily provided across international boundaries, but may also be agency relationships in some domestic contexts. As central banks are concerned with the smooth functioning of the payment system as a whole, they follow developments in this field as well.

Correspondent banking in euro continues to be of considerable importance for banks both within and outside the euro area. With regard to banks located outside the euro area, this trend reflects the importance of the euro as an international currency. As regards banks in the euro area, there is no straightforward explanation

for this trend, since these banks could, and do, also process payment transactions via the IFTSs operating in euro which were established in 1999. Part of the correspondent banking traffic within the euro area is thought to be related to tiering in payment systems, i.e. the provision of indirect access to a payment system, an area which has recently begun to receive attention in payment systems research. Another part of the intra-euro area correspondent banking traffic is likely to be rooted in traditional relationships between banks, and also possibly in the processing of transactions which cannot easily be executed via an IFTS, such as trade financing.

As with payment systems, central banks follow the risk situation in correspondent banking. There is an unabated trend towards the concentration of the business among a few major players, considered to be the result of the reduction of correspondent banking networks within the euro area owing to the existence of a single currency and the specialisation of some banks in the provision of correspondent banking services, as well as the ongoing consolidation of the banking sector in general. Another area of interest is the degree of internalisation of settlement, i.e. the share of the correspondent banking traffic which is settled on the books of a bank in commercial bank money, rather than via a payment system in central bank money. Since a commercial bank acting as the settlement agent could potentially fail, an internalisation of settlement poses some risks which are different from those in a payment system. At the same time, the provision of correspondent banking may be linked to the provision of intraday credit for the settlement of transactions and may thus increase the intraday credit exposure of the banks in question. The implications for the risks in correspondent banking are still under consideration.

#### 4 SECURITIES CLEARING AND SETTLEMENT SYSTEMS

Historically countries (coinciding with currency areas) developed their own “domestic” infrastructure for securities trading, clearing and settlement. For the single currency area, the Eurosystem moved towards establishing a similarly coherent and integrated infrastructure. For the Eurosystem, integration of the infrastructure means access for all users to the same services on the basis of the same conditions – regardless of the location of the user or provider. For instance, clearing and settlement costs and risks for trades in both national and other euro area/EU securities markets should be the same for the (final) investor.

Efficient and safe securities clearing and settlement systems are essential for integrated capital markets. The Eurosystem supports this process because it promotes the sound execution of monetary policy, the smooth functioning of payment systems and the preservation of financial stability, and, ultimately, increases economic growth potential.

The Eurosystem supports the integration process by:

- contributing to the removal of obstacles to integration (by cooperating with both the private sector and public authorities);
- setting standards for SSSs – as users – for Eurosystem credit operations;
- promoting the cross-border use of collateral (e.g. through the establishment of CCBM);
- enhancing the integration of the regulatory and oversight framework; and
- promoting financial market integration, for example by evaluating opportunities to provide efficient settlement services for securities transactions in central bank money (TARGET2-Securities).

It also supports the initiatives of the private sector, such as:

- *ACI-STEP*: the Euribor-ACI Short Term Paper Task Force, which aims to establish a European market for short-term securities.
- *EMA*: European Master Agreement for Financial Transactions sponsored by the Banking Federation of the EU in cooperation with the European Savings Banks Group and the European Association of Co-operative Banks. The EMA consolidates various master agreements used within the euro area and neighbouring countries (particularly for repurchase transactions and securities lending) into a single set of harmonised documents.
- *Capital Markets and Financial Integration in Europe*: a research network jointly established by the ECB and the Centre for Financial Studies (CFS). Its aim is to provide a better understanding of financial markets. The network regularly presents the work of its members in workshops.
- *SWIFT harmonisation protocol*: the decision-making bodies of the ECB promote the harmonisation of protocols for European securities and settlement by using an EU-wide protocol to overcome national differences in the IT interfaces used by clearing and settlement providers.

The introduction of the euro has accelerated the process of consolidation in securities market infrastructures in Europe. This process has continued in terms of both the integration of systems and ownership arrangements. However, although progress has been made with stock exchange integration, the integration of post-trade processes has been less rapid. Many buyers and sellers in different countries have to use some form of intermediation to carry out their trades, which means that transfers between separate systems – operating under different legal and regulatory regimes – still remain more

complex and, therefore, more expensive than domestic transfers.

The consolidation of regional stock exchanges into ever larger entities is important from the point of view of enhancing their competitiveness. In addition to traditional stock exchanges, several alternative trading systems, such as new electronic communication networks offering functionalities and services similar to those of traditional exchanges, have been introduced in the euro area.

Consolidation of trading and post-trading infrastructures has proceeded at an unprecedented pace over the past few years. Mergers or alliances have occurred as a result of this trend. This consolidation has been both vertical and horizontal.<sup>22</sup> As a result of this consolidation process, the number of euro area central counterparties halved from 14 to 7 in the period from January 1999 to May 2006. The number of central securities depositories, by contrast, diminished by only 5, from 23 to 18. However, it must be noted that most central securities depositories operate as a part of holding companies (Euroclear Group, Clearstream International, the Spanish BME Group, etc.). While the number of central securities depositories has remained stable in recent years, efficiency gains have been sought by developing common systems and concentrating operations. In this respect, achieving straight-through processing and interoperability (e.g. through the application of common standards) are the key challenges to be addressed in both national and international markets.

The following section describes those recent developments in trading, clearing and settlement which are of relevance for the euro area as a whole. Detailed information concerning domestic institutions can be found in the relevant country chapters.

#### 4.1 TRADING

Given the close relationship between trading and post-trading activities (e.g. clearing and settlement), the Eurosystem monitors developments in the trading infrastructure. This facilitates the preparation of policies for promoting an integrated and sound securities industry.

The introduction of the euro has eliminated currency segmentation, which was one of the main reasons for the fragmented listing and trading environment in the euro area. This has permitted investors to adjust their portfolios and look beyond their national markets. This is also true for investors from outside the euro area, which see the euro area securities markets as a single market. Increased cross-border trading has put pressure on stock exchanges to integrate their trading platforms in order to provide cost-efficient euro area-wide mechanisms. As a response to market demand, increased integration among stock exchanges has taken place in the form of cross-border cooperation and mergers. In addition, several alternative trading systems have been introduced in the euro area.

In September 2000 the Amsterdam Stock Exchange, the Brussels Stock Exchange and the Paris Bourse were merged into a single stock exchange called Euronext. The Euronext group expanded at the beginning of 2002 with the acquisition of LIFFE (the London International Financial Futures and Options Exchange) and the merger with the Portuguese exchange BVLP (Bolsa de Valores de Lisboa e Porto). Euronext operates through local subsidiaries and is incorporated as a Dutch limited company offering trading in equities, bonds, derivatives and commodities. After several competitive offers by the Deutsche Börse Group and the NYSE, the shareholders of Euronext recently decided to accept an offer made for it by the NYSE.

<sup>22</sup> "Securities trading, clearing, central counterparties, and settlement in EU 25 – an overview of current arrangements", COMP/D1/2003/13, Final Report by London Economics, p. x.



On 4 September 2003 the Swedish company OM (the operator of Stockholmsbörsen, which acts as a securities and derivatives exchange and as a central counterparty clearing house for derivatives) and HEX plc (the holding company of the Finnish HEX Group) merged to form OMHEX, which has, in the meantime, been renamed OMX. In 2006 OMX acquired Eignarhaldsfelagid Verdbrefathing hf (EV), which is the owner of the Iceland Stock Exchange (ICEX) and the Iceland Securities Depository.<sup>23</sup>

Following the OMX Group's acquisition of EV, OMX now comprises the exchanges of Stockholm, Helsinki, Copenhagen and Iceland, as well as part of those of Tallinn (62%), Riga (83%) and Vilnius (93%) and the securities depositories of the Baltic countries and Iceland.

Trading in fixed interest instruments has traditionally been dominated by OTC trading, whereby deals may be made by telephone. The introduction of the euro has highlighted the need to have facilities for cross-border trading. Alternative electronic trading platforms have emerged offering services ranging from simple order transmission to fully fledged trade execution facilities like EuroMTS, Coredeal, Tradepoint, Brokertec and Instinet. Most of these systems are located outside the euro area but have a high proportion of euro area-based institutions as owners and participants.

## 4.2 CLEARING

When a clearing house acts as central counterparty, it interposes itself as a legal counterparty to both sides of a securities transaction. In doing so, it provides a number of benefits to market participants. For instance, it simplifies the management of counterparty risk by providing one single counterparty instead of many. Even though a central counterparty does not in itself eliminate credit risk in a market, it can redistribute the risk to those which are better able and more willing to bear it. Moreover, a central counterparty increases the liquidity of

the market-place through netting. Finally, it reduces the number of settlements and therefore the associated risks and operational costs.

Central banks are involved operationally in clearing, typically acting as cash settlement agents for CCPs providing settlement in central bank money.

CCPs in Europe may enter into arrangements with each other in accordance with their clients' needs. Such arrangements have the potential to make the clearing of cross-border trades more efficient and less costly. Several types of cooperation or "links" between CCPs have emerged in the last few years; these vary both in nature and in purpose. One type of cooperation between CCPs concerns link arrangements which enable participants in a CCP for one market to trade in another market served by a separate CCP, while clearing those trades through their existing arrangements. In this way, participation in a single CCP is sufficient to clear cross-border trades. This type of arrangement is also particularly helpful when market infrastructures consist of a multiplicity of different exchanges and markets, each of which is served by separate CCPs. One example of this type of cooperation in the euro area is the link between LCH.Clearnet SA and the Italian CCP CC&G.

Another example of integration in central counterparty clearing is where CCPs have effectively merged their clearing systems into a single system. This form of integration is often driven by integration at the level of trading. The participant in one CCP will continue its relationship with that CCP, but all risk management is effected by the wholly integrated systems of the linked CCPs. The requirements relating to participation, defaults, margins and financial resources, as well as operational requirements, to which CCP participants are subject become harmonised and may thus differ

<sup>23</sup> The letter of intent was signed on 19 September 2006, and the acquisition was finalised on 30 November 2006.

from the requirements in place in one or both of the CCPs prior to the link.

Market participants have a strong preference for integration in the clearing industry in Europe because this will enable them to take full advantage of clearing facilities. Indeed, the number of CCPs for financial instruments (derivatives, securities and repos) in the euro area dropped from 14 in January 1999 to 7 by May 2006. This relatively sharp decline was driven by developments in the Euronext countries France, Belgium, the Netherlands and Portugal. In May 1999 the 3 French CCPs were merged into Clearnet SA. In 2001 Clearnet took over the activities of the CCPs in the Netherlands and Belgium. In 2003 Clearnet SA and the London Clearing House (LCH), the CCP of the United Kingdom, were brought under a common holding company. Clearnet SA was renamed LCH.Clearnet SA and LCH was renamed LCH.Clearnet Ltd. In 2004 LCH.Clearnet SA took over the activities of the Portuguese CCP. LCH.Clearnet SA is now offering clearing services for the four respective markets/jurisdictions (i.e. France, Belgium, the Netherlands and Portugal). Local market participants become remote clearing members and, irrespective of their origin, trades are cleared in LCH.Clearnet SA (under French law). LCH.Clearnet Ltd serves the UK market as an independent entity. As yet, however, no link arrangement has been established between LCH.Clearnet Ltd and LCH.Clearnet SA.

Consolidation has also taken place within the OMX Group, with all clearing of Finnish derivatives traded in OMX being moved from Finland to Sweden by the end of 2004.

#### 4.3 SETTLEMENT

The Eurosystem is involved in the settlement of securities in a number of ways. First, in some euro area countries central banks operate securities settlement systems. Second, in most cases central banks are the cash settlement agent for securities settlement systems. Third, most of the central banks are mandated by law

(or their statutes) to oversee securities settlement systems. Finally, the Eurosystem makes use of securities settlement systems for the collateralisation of its credit operations related to the implementation of monetary policy and the operation of payment systems.

As explained in Section 1.2.2, the Eurosystem has an interest in the smooth operation of securities settlement arrangements throughout the euro area. The main reason for this is the fact that any significant disturbance in the securities settlement systems may not only have a serious impact on the operation of the whole of the euro area's financial markets, but also jeopardise the collateralisation process of the Eurosystem credit operations.

Oversight, which aims to ensure financial stability through the elimination of systemic risk, is carried out largely at the national level and is, therefore, explained in more detail in the country chapters. The following sections describe those specific securities settlement systems and arrangements which have a cross-border dimension, as well as the assessments by the Eurosystem carried out from a user perspective.

Three different solutions have emerged in response to securities market demands for the rationalisation of the securities settlement industry following the introduction of the euro:

- cross-border links, which are account relationships between SSSs, where a national SSS provides a single point of entry which allows its customers to hold securities issued in any other SSS and to use these securities within its own country;
- “relayed links”, whereby one SSS acts as an intermediary on behalf of another SSS for the settlement of international business; and
- consolidation of European securities settlement infrastructure providers.

### 4.3.1 CROSS-BORDER LINKS

A link between two SSSs consists of a set of institutional, legal and technical procedures and arrangements for the cross-border transfer of securities through a book-entry process. A link takes the form of an omnibus account opened by an SSS (the investor SSS, i.e. the SSS where securities are used) in another SSS (the issuer SSS, i.e. the SSS where securities are issued). These links are used for the transfer of eligible collateral for the Eurosystem's credit operations, as well as for all interbank operations. In this regard, links provide a market alternative for the correspondent central banking model<sup>24</sup>, which was originally set up by the ESCB as an interim solution for the cross-border use of collateral.

A link between two SSSs is unilateral when it is used only for the transfer of securities registered in one system to another system, and not vice versa. A bilateral link between two SSSs means that a single agreement regulates the transfer of securities from either system. A direct link implies that no intermediary exists between the two SSSs, and the operation of the omnibus account opened by the investor SSS is managed by the investor SSS. In an operated direct link, a third party (i.e. a commercial bank) operates

an account in the issuer SSS on behalf of the investor SSS. The responsibility for the obligations and liabilities in connection with the registration, transfers and the custody of securities must remain legally enforceable only between the two SSSs.

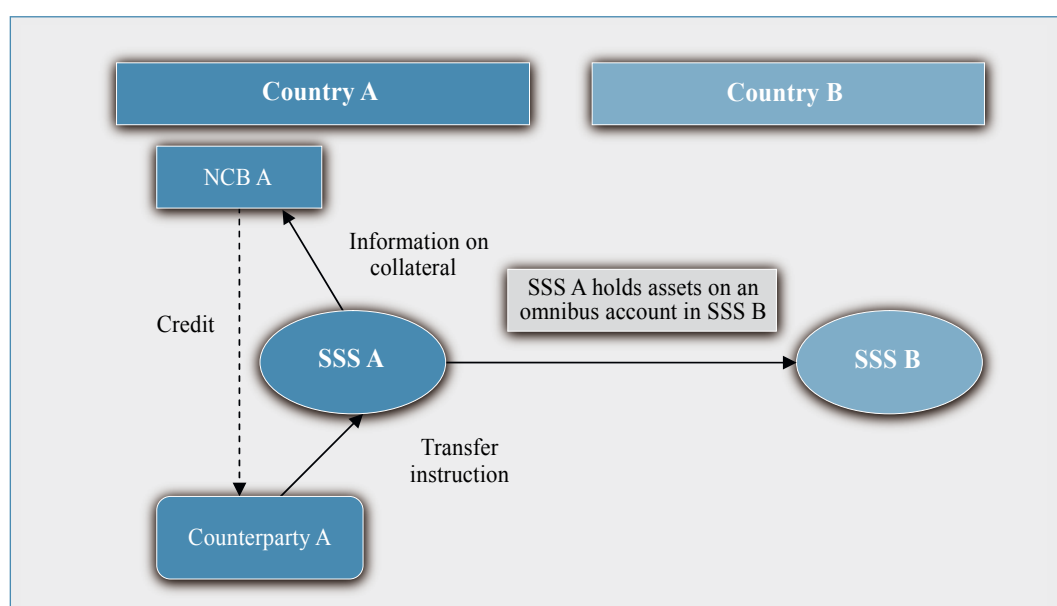
The chart below depicts the use of eligible assets via a cross-border link.

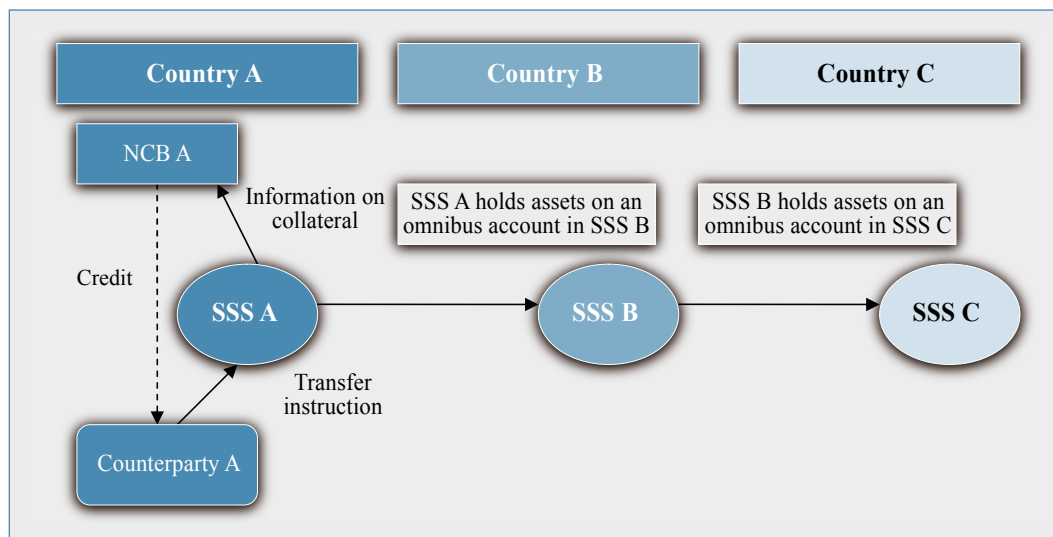
Thus far the use of links has been more limited than expected. For example, in 2006 21 of the 59 links had not been used at all. The implementation of new models, such as DvP links or relayed links, may lead to an increased use of links in the future.

### 4.3.2 RELAYED LINKS

In 2005 the Governing Council of the ECB decided that relayed links between SSSs could be used for the cross-border transfer of securities to the Eurosystem in response to growing demand by market organisations for the acceptance of securities transferred through relayed links.

<sup>24</sup> See Section 4.3.4.





Relayed links are agreements for the holding and transfer of securities involving at least three securities settlement systems: the investor SSS, the issuer SSS and the middle SSS. Transactions take place between participants in the issuer SSS and the investor SSS. Since the issuer SSS and the investor SSS are not directly linked (i.e. they do not hold accounts with each other), the middle SSS acts as an intermediary for the transactions between them.

The chart above depicts the use of eligible assets via a cross-border relayed link.

#### 4.3.3 CONSOLIDATION OF EUROPEAN SECURITIES SETTLEMENT INFRASTRUCTURE PROVIDERS

##### *Euroclear Group*

On 1 January 2005 the Euroclear Group was restructured significantly. Euroclear Bank, Euroclear France, CRESTCo and Euroclear Nederland became full subsidiaries of Euroclear SA/NV, a new holding company incorporated in Belgium and set up as a full subsidiary of Euroclear plc, a United Kingdom-based holding company. On 1 January 2006 Euroclear SA/NV also acquired Caisse Interprofessionnelle de Dépôts et de Virements de Titres/ Interprofessionele Effectendeposito- en Girokas (CIK), the Belgian CSD for private securities, which was previously owned by Euronext.

The new structure of the Euroclear Group is depicted in the chart opposite.

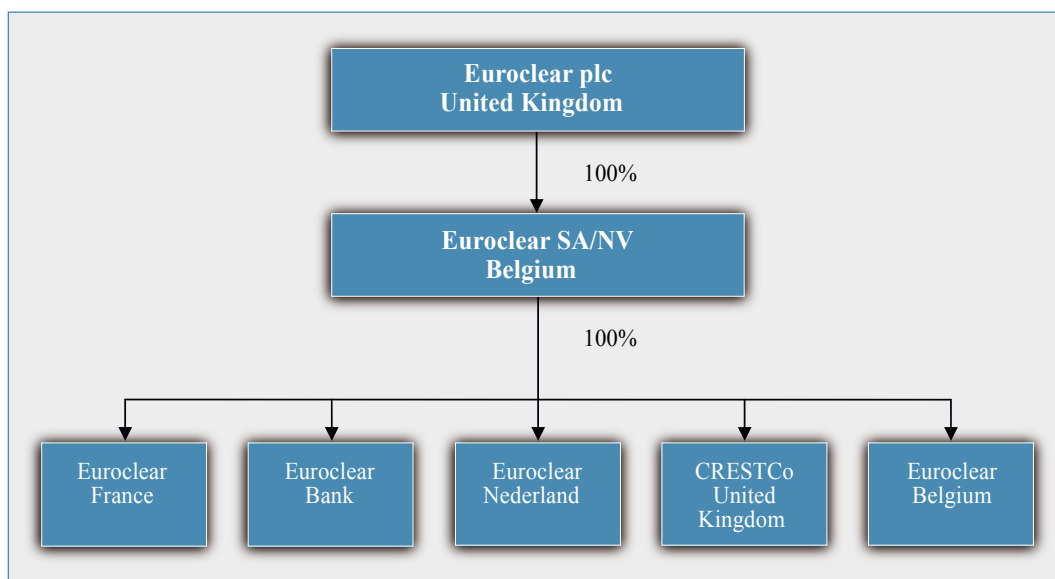
The Euroclear Group provides both ICSD and CSD services through its various entities.

Euroclear plc is the holding company for the entire Euroclear Group. It is owned by market participants.

Euroclear SA/NV, which is the holding company of the group's national and international central securities depositories, owns the group's shared securities processing platforms and performs a range of services for the group's depositories, including the development of its technology platform.

Euroclear Bank is an ICSD (incorporated under Belgian law). It is therefore a primary place of issuance for international securities, including Eurobonds (generally together with Clearstream Banking Luxembourg), and provides cross-border settlement facilities in these, as well as in domestic securities.

Euroclear Belgium, Euroclear France and Euroclear Nederland are the CSDs for the Belgian, French and Dutch markets respectively. CRESTCo is the CSD for the UK market and for Irish equities.



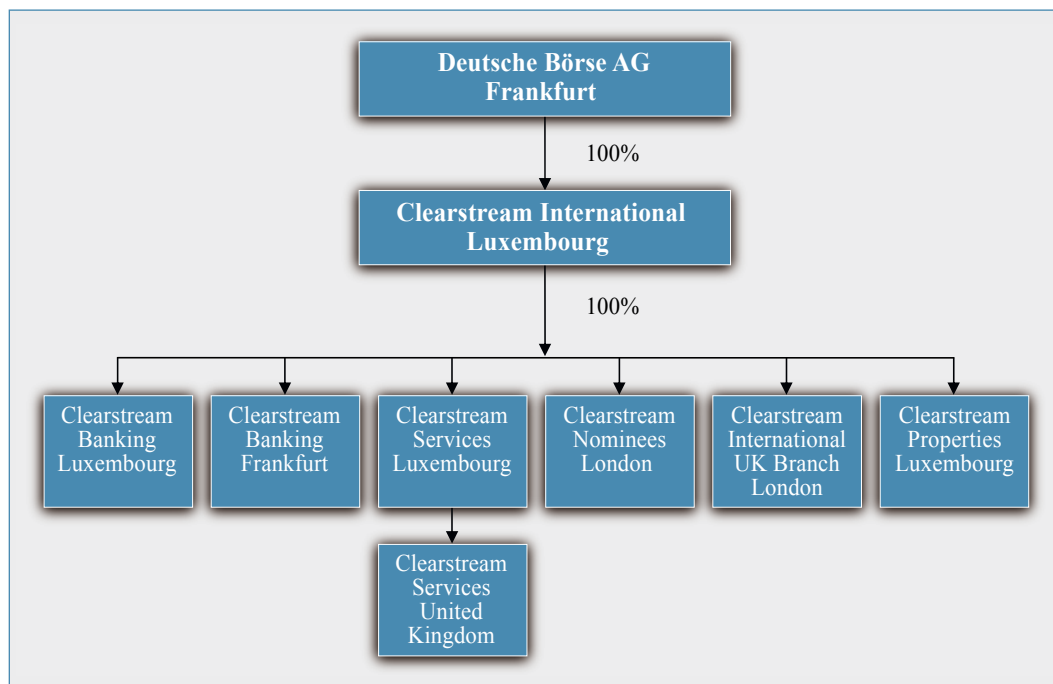
When the restructuring of the group was completed on 1 January 2005 various functions, assets and employees were moved from the four CSDs and from the ICSD to Euroclear SA/NV. In the past all five (I)CSDs used different IT settlement platforms. In order to increase settlement efficiency across the entities in the group, Euroclear has launched a project to integrate the different platforms. As a first step, Euroclear has developed a single IT settlement platform for all Euroclear (I)CSDs (the Single Settlement Engine; SSE). The SSE is an IT facility through which all book-entry transfers of securities against cash (within one (I)CSD or across different (I)CSDs of the Euroclear Group) may be carried out. It constitutes the first building block of the ESES (Euroclear Settlement for Euronext-zone Securities) and Single Platform projects and concentrates on the core settlement functionality (i.e. positioning and booking of liquidity and securities transfers). It is owned and operated by the new company Euroclear SA/NV. The migration of Euroclear France, CRESTCo and Euroclear Bank to the SSE took place in 2006.

The next step in the migration to a single platform will be the launch of ESES. This will serve as a single processing solution, allowing

the processing of both domestic and cross-border fixed income and equity transactions in the Belgian, Dutch and French markets as if they were a single market. The ESES project will be launched in 2007 and is expected to be completed by the second quarter of 2008. This project requires the harmonisation of settlement procedures, corporate event handling and tax issues across the different markets.

Continuing to leverage the work done on the SSE, Euroclear will then enter the final phase of consolidation onto the single platform serving all Euroclear Group markets. This will start with custody-related processing in late 2008, with all components of the single platform scheduled to be completed in 2009-10.

With regard to regulation and control by competent authorities, it should be noted that the French, Belgian, Dutch and UK oversight and regulatory authorities concluded a memorandum of understanding when Euroclear SA/NV was created. That MoU organises the coordination of the activities of these authorities as regards the common services provided by Euroclear SA/NV to the CSDs and the ICSD of the Euroclear Group. The Belgian authorities act as lead overseers.



### *Clearstream International*

Clearstream International is a holding company incorporated in Luxembourg. It was formed in January 2000 through the merger of Cedel International (an ICSD established in Luxembourg in 1970 by a group of global financial institutions) and Deutsche Börse Clearing (the national CSD of Germany). The full integration of Clearstream was carried out in two stages and was completed in July 2002 when Clearstream International became a full subsidiary of Deutsche Börse AG.

Clearstream International is an international securities settlement organisation with extensive services for equities and bonds for both domestic and international business. The holding company has three main subsidiaries: Clearstream Banking Luxembourg (CBL), Clearstream Banking Frankfurt (CBF) and Clearstream Services Luxembourg. Joint regional offices are used for representation in the major financial centres.

CBF offers settlement facilities for the German securities markets. CBL is an ICSD (i.e. it provides settlement services in global and

international securities traded across borders), but it also operates LuxClear, which is the national CSD of Luxembourg. Clearstream Services Luxembourg is a technical service provider operating the single IT platform, called Creation, used for settlement and custody of international business. Since CBF's international business migrated to the Creation platform in February 2001, both CBL and CBF have been using it for the settlement of international securities in commercial bank money.

The corporate structure of Clearstream International and its subsidiaries is illustrated in the chart above.

### *NCS D*

The CSDs of Finland and Sweden, APK and VPC, merged to form a new holding company, NCS D (Nordic Central Securities Depository), in the fourth quarter of 2004. VPC bought all of the shares in APK, which became a wholly owned subsidiary of it. Both APK, which was previously owned by the OMX Group, and VPC, which was previously an independent company, continue to exist as separate legal entities. Business operations are conducted under the



brand name NCSG Group; however, operations are run by the respective companies in Sweden and Finland, authorised by the competent national supervisory authorities of each country.

Through this consolidation, NCSG became the leading Nordic CSD operator, covering approximately 70% of total Nordic CSD operations. The group provides services in registration, safekeeping, account operations and the clearing and settlement of financial instruments.

Most domestic issuers and participants in the Nordic securities markets regard the entire Nordic market as their home market. To international participants, too, the Nordic market often appears to be one market, both from a structural and a business perspective. NCSG is striving to strengthen this Nordic model and is going to make possible operational efficiency and economies of scale through a unified interface for Nordic and international issuers and participants. NCSG plans to develop and implement a Nordic Market Model, which will be based on the Nordic market structure and characterised by transparency and openness, harmonisation and connectivity and a single service platform to increase the efficiency and competitiveness of the Nordic region as a financial market and provide benefits for issuers, market participants and investors.

#### 4.3.4 THE CORRESPONDENT CENTRAL BANKING MODEL

The correspondent central banking model came into operation on 4 January 1999. It was established in order to facilitate the cross-border use of collateral in the Eurosystem's monetary policy operations and the provision of intraday credit in TARGET. Eurosystem counterparties involved in monetary policy operations and participants in TARGET can only obtain credit from the central bank of the country in which they are incorporated, i.e. their home central bank (HCB). Within the CCBM, the NCBs act as collateral correspondents for each other, thus enabling counterparties to

use all of their eligible assets to obtain credit from their own NCB, regardless of where the securities are located (see chart overleaf). The CCBM ensures that all assets eligible for use either in monetary policy operations or to obtain intraday liquidity in TARGET are able to be mobilised by all of its counterparties – regardless of where in the euro area the assets or the counterparty are situated.

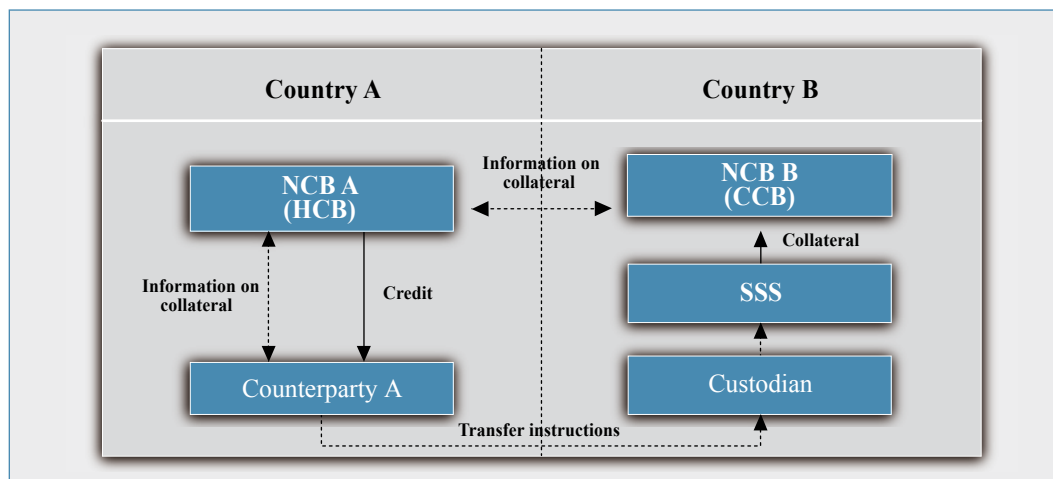
In order for the CCBM to function, market participants must make arrangements with the SSSs where the collateral is deposited for the delivery of the marketable assets<sup>25</sup> intended to serve as collateral to an account at the local NCB. Acting as a correspondent central bank (CCB), the local NCB will then hold the collateral on behalf of the central bank granting the credit (the HCB).

The model was designed to facilitate the cross-border use of collateral until adequate market solutions become available throughout the euro area.

The chart overleaf depicts the use of eligible assets deposited in country B by a counterparty in country A in order to obtain credit from the NCB of country A.

To date the CCBM has been used more than the links between SSSs (see chart overleaf). In 2006 collateral submitted to the Eurosystem via the CCBM accounted for 39.7% of the total collateral provided. This figure is remarkable when compared with the 10.5% of collateral held in custody through link arrangements between SSSs, the only alternative to the CCBM for transferring cross-border collateral. The remaining 49.8% of collateral used in Eurosystem operations is held domestically.

<sup>25</sup> In the case of non-marketable assets (and, from 1 January 2007, credit claims in particular), arrangements are made directly with the correspondent central bank, with the assistance of the home central bank where needed.



The chart opposite shows the use of links and the CCBM in the collateralisation of the Eurosystem's credit operations.

In 2006 the average value of assets held in custody through the CCBM was €371 billion. The main users of collateral (i.e. acting as HCB) were the central banks of the following countries: Germany (with 58.7% of the total collateral held through the CCBM), the Netherlands (7.4%), France (6.7%), Luxembourg (6.1%) and Ireland (4.7%)

The main collateral providers (i.e. acting as CCB) were the central banks of the following countries: Luxembourg (with 34.5% of the assets held through the CCBM), Spain (17.3%), Belgium (15.1%) and Italy (10.8%). The large proportion of collateral provided by Luxembourg and Belgium is due to the fact that Clearstream Luxembourg and Euroclear, the two ICSDs, are located in those countries.

Since 1 January 2007 credit claims have been eligible as collateral in Eurosystem credit operations in all euro area countries and have been included in the Single List of collateral. These assets can now be mobilised, using specific procedures designed to cater for credit claims as described in the CCBM documentation.

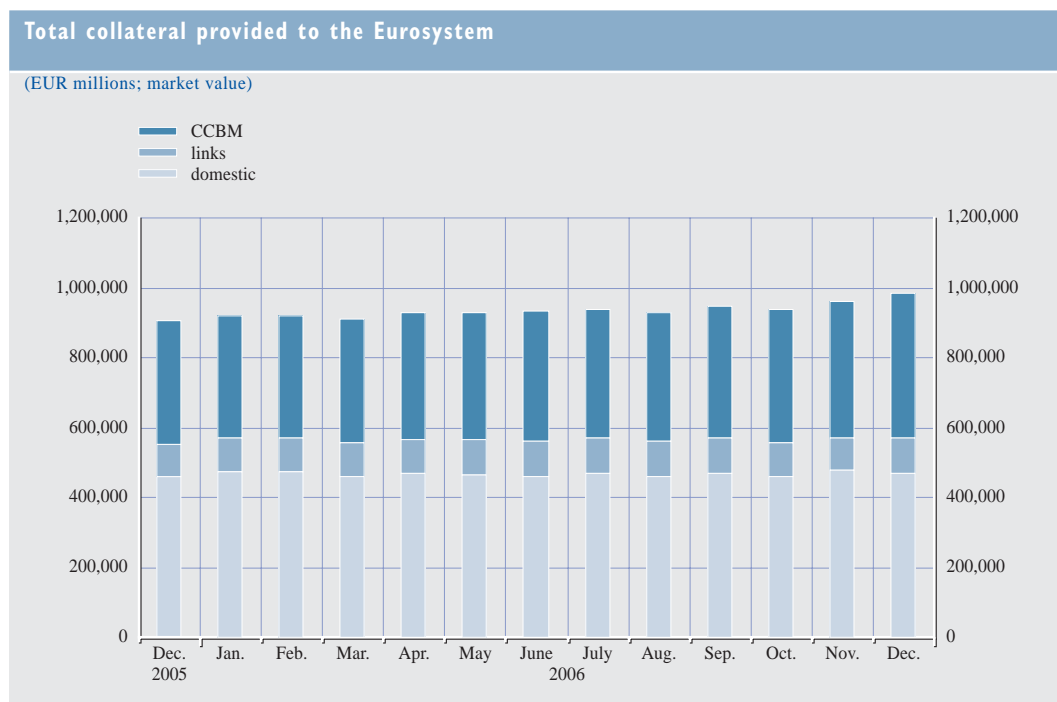
The ECB has started analysing possible paths for the evolution of the operational framework for collateral management in the Eurosystem.

#### 4.3.5 USER ASSESSMENTS BY THE EUROSISTEM

In order to be eligible as collateral for Eurosystem credit operations, marketable assets must comply with the eligibility criteria defined in the General Documentation on Eurosystem Monetary Policy Instruments and Procedures. These require that eligible securities be transferable in book-entry form and be held and settled in the euro area through an account with the Eurosystem or with an SSS that fulfils the standards established by the ECB, so that perfection and realisation are subject to the law of a euro area country. If the CSD where the asset is issued and the SSS where it is held are not identical, the two institutions must be connected by a link approved by the ECB.

In order to monitor whether securities settlement arrangements used in the collateralisation of credit operations continuously fulfil the standards established by the ESCB in 1998, the Eurosystem regularly assesses them.

Individual SSSs are periodically assessed against the ESCB user standards in order to qualify for use by the Eurosystem. The first assessment was completed before the start of Stage Three of EMU in 1998, and 29 SSSs qualified at that time. Six further reports



followed on a regular basis in order to monitor major changes in individual SSSs. Owing to the consolidation process in the securities settlement industry, the number of SSSs in the EU has decreased. Moreover, some SSSs that were assessed in the first reports have never been used for Eurosystem credit operations and are therefore no longer assessed. Furthermore, the Eurosystem has stopped using and assessing SSSs located in Denmark, Sweden and the United Kingdom, since, as of 1 July 2003, only securities issued and held in an SSS located in the euro area have been eligible for Eurosystem credit operations. As a result, 18 SSSs are currently eligible for participation in Eurosystem credit operations, all of which are located in the euro area.

The first link assessment was completed in May 1999, and 26 links qualified at that time. Seven further reports followed on an ad hoc basis, and a total of 67 links in the EU have been positively assessed by the Eurosystem during the last seven years. However, owing to the fact that SSSs located outside the euro area are no longer assessed, there are currently only 59 links that are eligible for participation in Eurosystem credit operations. The links which have been assessed so far are used by the Eurosystem for the cross-border transfer of securities on an FOP basis.

As far as relayed links between SSSs in the euro area are concerned, the first assessment report was published in July 2007. All five relayed links assessed were considered to be eligible to participate in the collateralisation process of the Eurosystem's credit operations.





# BELGIUM

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## LIST OF ABBREVIATIONS

CBFA	Banking, Finance and Insurance Commission – <i>Commission bancaire, financière et des assurances (CBFA)/Commissie voor het Bank-, Financie- en Assurantiewezen (CBFA)</i>
CEC	Centre for Exchange and Clearing – <i>Centre d’Echange et de Compensation (CEC)/Uitwisselingscentrum en Verrekening (UCV)</i>
CIK	Interprofessional securities depository trust – <i>Caisse interprofessionnelle de dépôts et de virements de titres SA/Interprofessionele effectendeposito- en girokas NV</i>
EBe	Euroclear Belgium (formerly CIK)
ELLIPS	Electronic Large-value Interbank Payment System
EMSS	Electronic matching and securities settlement
FMS system	Forward market settlement system
National Bank of Belgium SSS	Securities settlement system for government bonds operated by the NBB



## INTRODUCTION

Belgian payment systems are characterised by a very high level of automation. This is the result of efforts made by credit institutions since the early 1970s with a view to rationalising the processing of payment operations. At a very early stage, interbank cooperation led to several standardisation agreements, which formed the basis for the entire automation process. The first fundamental step was the establishment in 1974 of the Centre for Exchange and Clearing (CEC), at which point retail payments began to be processed on an automated basis. The second important step towards the complete automation of national payment systems was the launch in 1996 of the Electronic Large-value Interbank Payment System (ELLIPS), an RTGS system for large-value payments.

The Nationale Bank van België/Banque Nationale de Belgique (NBB) has been very closely involved in these efforts. In addition to its more traditional role as settlement agent, it is also responsible for the operational management of the interbank settlement systems.

Credit transfers and related instruments are still the principal means of payment. The use of cheques has been declining steadily for several years. This instrument is tending to be replaced by card payments. The latest developments include the expansion of internet banking, as well as new means of electronic payment, notably e-invoicing and “Electronic Bill Presentment and Payment”.

The Belgian banking sector, together with the NBB, has demonstrated its determination to implement the new SEPA standards for payment instruments. Those SEPA instruments – credit transfers, direct debits and card payments – should be available to Belgian bank customers as from the beginning of 2008. Use of the SEPA instruments will allow customers to use the same payment instruments for all payments within the euro area and will make payments within the SEPA as efficient and easy as local payments.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### *Financial intermediaries which provide payment services*

Distinctions between commercial banks, savings banks and public credit institutions as regards their legal status and supervisory frameworks have disappeared completely since the new Law on the status and supervision of credit institutions came into force in 1993.

By the end of December 2005 there were 106 credit institutions in Belgium, of which 54 were governed by Belgian law and 52 by foreign law (with 33 from other Member States of the EU). The number of credit institutions has dropped significantly in the last few years as a result of a wave of mergers and acquisitions.

These credit institutions include the Post Office Bank, a subsidiary jointly owned by the Post Office and the largest Belgian private bank. The Post Office Bank, which has the status of a credit institution, markets – under the Post Office Bank logo – banking products such as current accounts, payment cards and savings products through the branch network of the Post Office. The Post Office, which does not have the status of a credit institution, handles the large majority of the government's payments.

The credit institutions and the Post Office are represented by 5,864 branches, i.e. one branch for every 1,778 inhabitants.

Non-bank institutions are also represented in the payment media market, in particular companies issuing in-house cards, luncheon vouchers and traveller's cheques (see Section 2.2.4).

#### *Legal aspects*

It should first be pointed out that Belgium does not have a general legal and regulatory framework relating to payment systems, payment service providers or payment

instruments. These areas are governed mainly by specific legislation or regulations, often in the field of consumer protection, which serve in part to implement the relevant EC directives.

Second, the legal and regulatory framework applicable to payment systems, payment service providers and payment instruments has improved significantly in recent years with regard to various aspects of these areas.

The main texts governing payment systems and payment service providers are as follows:

- a. The Law on the legal status and supervision of credit institutions (22 March 1993), which seeks to protect the savings of the public and to safeguard the smooth functioning of the credit system by laying down rules for the establishment and operation of credit institutions, as well as for the supervision of such institutions. This Law also implements the provisions of the Second Banking Coordination Directive.

The Law on the legal status and supervision of credit institutions also contains a chapter on netting between credit institutions. The Law seeks to guarantee the legal certainty of offsetting agreements for debts between two or more credit institutions in the event of the bankruptcy of one of those institutions or any other situation involving concurrent claims which is governed by Belgian law.

Before the Law was adopted, two principles of Belgian bankruptcy law could be invoked to challenge the effectiveness of netting arrangements: a) the prohibition of any offsetting after bankruptcy, except between related debts; and b) the principle that the bankruptcy decision of a court has retroactive effect, starting from the first hour of the day on which it was made (the “zero-hour rule”).

These principles were likely to prevent the participation of Belgian banks in international interbank netting systems,

thereby depriving them of the advantages which might result from the consequent reduction in settlement costs and in credit and solvency risks involved in international financial operations. Moreover, the uncertainties which existed in Belgian law with regard to the possibility of relying upon netting agreements in legal proceedings against third parties reduced the attraction of locating the centre of an international netting system in Brussels.

This is why express recognition was given, through Article 157 of the Law on the legal status and supervision of credit institutions, to the legal validity of bilateral or multilateral offsetting agreements for claims – whether solely between credit institutions or between credit institutions and a clearing house – as well as to “close-out” agreements (express termination clauses in the event of bankruptcy or other default situations). These agreements are legally binding and enforceable against third parties (including a liquidator), subject to the conditions defined in this provision being met. In particular, it is clear that the claims to be offset need no longer be related. Article 157 also states that payments made by or to a credit institution on the date on which it is declared bankrupt will be valid if they precede the time of the bankruptcy decision or if they are made without knowledge of the bankruptcy of that credit institution.

The scope of Article 157 has been extended, by a royal decree dated 28 January 1998, in such a way as to include the majority of financial institutions, rather than being limited only to credit institutions.

- b. The Law on settlement finality in payments (Law on finality; 28 April 1999), which transposes Directive 98/26/EC. Article 9 of this Law also introduces a concept foreign to the Directive, stating that cash settlement accounts held with an operator or a settlement agent of a settlement system may not be blocked, by any means, by a

participant (other than the operator or the settlement agent of the system), a counterparty or a third party.

- c. Article 8 of the Organic Law of the NBB (22 February 1998), which entrusts the NBB with supervisory powers with regard to clearing, payment and securities settlement systems (see Section 1.2).
- d. The Law of 2 August 2002 on the supervision of the financial sector and on financial services (see Section 1.2).

The most significant texts existing under Belgian law relating specifically to payment instruments are as follows:

- Law on cheques (1 March 1961);
- Royal Decree on the indication of homogeneous financial service tariffs (23 March 1995);
- Law on the value date of bank operations (10 July 1997);
- Law on accountability for interest due on accounts opened by credit institutions or other legal entities (14 July 1998);
- Law on cross-border retail payments (9 January 2000), which transposes the provisions of Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers;
- Law on electronic payment instruments, which applies an EU recommendation of 30 July 1997;
- Legislation on electronic signatures transposing into Belgian law Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures.

In addition to these texts, relations between credit institutions, consumers and retailers are governed mainly by contracts.

## **1.2 THE ROLE OF THE CENTRAL BANK**

### **1.2.1 GENERAL RESPONSIBILITIES**

The NBB is closely involved in the Belgian interbank clearing mechanisms: it runs and is responsible for the daily management of the CEC, ELLIPS and the Clearing House. The CEC is an ACH and is designed for retail payments; ELLIPS is an RTGS system and is part of the TARGET system. The NBB also operates the National Bank of Belgium SSS, a dematerialised SSS for government bonds.

Since 1 January 1999 the NBB has been legally responsible for the oversight of payment and clearing systems established in Belgium.

### **1.2.2 OVERSIGHT**

The NBB's responsibility for oversight has an explicit legal basis in Article 8 of its Organic Law, which reads as follows: "The Bank shall ensure that the clearing and payment systems operate properly and shall make certain that they are efficient and sound. It may carry out all transactions or provide facilities for these purposes. It shall provide for the enforcement of the regulations adopted by the ECB in order to ensure the efficiency and the soundness of the clearing and payment systems within the European Community and with other countries." As is stipulated in the Explanatory Notes to this Organic Law, this responsibility covers both payment systems and SSSs.

The NBB's oversight powers as regards SSSs were expressly confirmed in Article 23 of the Law of 2 August 2002 on the supervision of the financial sector and on financial services.

In line with the assignment of tasks agreed at the Eurosystem level with regard to payment systems, the NBB performs the oversight of the following payment systems established in Belgium: ELLIPS, Atos Worldline (see Section 1.3), the CEC and MasterCard Europe.

In the context of the Committee on Payment and Settlement Systems (CPSS), the NBB is involved in the oversight of CLS.

The NBB oversees the SSSs established in Belgium: Euroclear, Euroclear Belgium (EBE; formerly CIK) and the National Bank of Belgium SSS. It is also involved in the oversight of LCH.Clearnet SA, which is established in France as a bank offering clearing services for cash and derivative exchanges, as well as for OTC trades.

Finally, the NBB also oversees SWIFT. A special arrangement has been agreed by the CPSS in this respect, whereby the NBB acts as the leading overseer of SWIFT and is supported by the central banks of the G10.

### **1.2.3 SUPERVISION AND AUDIT**

The NBB is not responsible for the supervision of individual credit institutions (microprudential supervision). This task is undertaken by a legally autonomous institution: the Banking, Finance and Insurance Commission (CBFA). The NBB is, however, concerned with the security and stability of the financial system as a whole (macroprudential supervision) and has been entrusted by law with the task of contributing to the stability of the financial system (see Article 12 of the Organic Law of the NBB).

Moreover, the Law of 2 August 2002 on the supervision of the financial system and on financial services initiated an institutional rapprochement between the NBB and the CBFA. This Law introduced an obligation for the two institutions to cooperate closely on all issues of common interest and created institutional links between the NBB and the CBFA at three levels.

First, three members of the Board of Directors of the NBB also have a seat on the seven-member Board of the CBFA, where they have operational responsibilities. Similarly, three members of the Supervisory Board of the NBB have a seat on the Supervisory Board of the CBFA.

Second, the Law created two umbrella bodies with the objective of coordinating the supervision of the financial sector. Both are chaired by the Governor of the NBB. The first, the Financial Stability Committee, is composed of the members of the Boards of Directors of the NBB and the CBFA. Its statutory objective is to examine all issues of common interest to the NBB and the CBFA. The second, the Supervisory Board of the Financial Services Authority, is composed of the members of the Supervisory Boards of the NBB and the CBFA. It is an advisory body concerned with issues related to financial markets and financial institutions and orchestrates dialogue and coordination between the CBFA and the NBB.

Third, the Law obliges the two institutions to combine some of their activities and functions in order to develop synergies. The identification and management of the combined activities falls within the competences of the Financial Stability Committee.

In addition, the NBB collects annual and other periodic prudential reports from credit institutions and sends them to the CBFA, while the CBFA must consult the NBB before publishing regulations concerning solvency and liquidity.

The NBB and the CBFA each have their own specific roles to play. Essentially, this means that oversight activities focus mainly on systems, while prudential activities focus mainly on institutions. The NBB and the CBFA have a long tradition of cooperation. The main principles of this cooperation are laid down in Article 5 of the royal decree implementing Article 118 of the Law of 2 August 2002 on the supervision of the financial sector and on financial services. This cooperation will be deepened as a result of the recommendations made by the IMF in the context of the FSAP programme.

The audit department of the NBB is concerned with the various clearing systems operated by the NBB (the CEC, ELLIPS and the National

Bank of Belgium SSS) where the NBB is responsible for the operational organisation of these systems.

#### 1.2.4 ESTABLISHMENT OF STANDARDS

Since the early 1970s Belgian credit institutions have concluded various cooperative agreements in the field of information processing in order to facilitate interbank transactions. The NBB performs the administration of the Secretariat of Protocols. It is also actively involved in preparing and writing the agreements. The first “interbank protocol”, signed on 8 July 1970, established a uniform structure for account numbers, according to which the first three figures identify the institution concerned.

Other agreements concerning, inter alia, the standardisation of the most commonly used payment instruments (i.e. credit transfers, cheques and direct debits) and the establishment of an ACH and an RTGS system have since been signed.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

The main interbank organisations operating in the field of payment and securities systems are as follows:

- the CEC, founded as a non-profit association in 1974 by the banking sector as a whole in order to automate the exchange of payment transactions;
- ELLIPS, founded in 1995 as a non-profit association in order to manage the ELLIPS system;
- the CBFA, the prudential authority (see Section 1.2.3);
- the Belgian Bankers’ Association, a professional organisation which aims to promote its members’ professional interests, mainly through economic studies, fiscal, legal and technical advice, and training;

- the Committee of the Securities Regulation Fund, which operates the Belgian secondary over-the-counter market in Belgian government bonds and Treasury certificates;
- Atos Worldline, which acquired Banksys and the Bank Card Company at the end of 2006. Banksys operated, inter alia, the ATM<sup>1</sup> and POS network, together with the electronic purse scheme PROTON, and the Bank Card Company was responsible for the administration of two major international card schemes (Visa and MasterCard).

There are also several bodies concerned with the migration to and implementation of the SEPA. Such migration and implementation efforts take place on two levels. At a general level, and therefore involving all stakeholders, the Steering Committee on the Future of Payment Instruments has established a working group to monitor the implementation of the SEPA in Belgium. At a lower level, the SEPA Forum has taken the lead in the preparations for the SEPA implementation and migration. The SEPA Forum concentrates on work at the interbank level and is composed of representatives of the NBB and the banking community. The organisational structure of the SEPA Forum is based on the EPC structure and likewise consists of different layers. At the highest level, the Governor of the NBB meets with the board members of commercial banks. The decisions of the SEPA Forum are binding on the Belgian banks and are based on proposals made by the Payment Systems Committee (Paysys). Paysys is a consultative body responsible for the definition of policy and strategy for all payment systems-related issues in Belgium. One layer below Paysys is the Coordination Committee, which draws up proposals, ensures their overall consistency and coordinates the output of different working groups and task forces. Furthermore, the Steering Committee on the Future of Payment Instruments has established the Working Group for the Implementation of SEPA, which is in charge of the implementation efforts of all

relevant stakeholders. This working group brings together all stakeholders involved in the implementation of the SEPA, namely representatives of public authorities, the banking industry, the Post Office, consumers, corporations, SMEs and traders.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Cash comprises banknotes in denominations of €5, €10, €20, €50, €100, €200 and €500, and coins in denominations of €0.01, €0.02, €0.05, €0.10, €0.20, €0.50, €1 and €2. Data related to banknotes and coins can be derived only at the euro area aggregate level (see Table 3).

The issuance of coins is restricted by law to €0.5 billion. Coins are legal tender only up to a certain amount, which is different for each denomination.

It is not possible to estimate the value or number of cash payments. However, some indications regarding cash payments can be found in a study carried out in the context of the debate on the societal cost of cash. The study, “Costs, advantages and drawbacks of the various means of payment” (16 December 2005), can be found on the NBB’s website ([www.nbb.be/pub/](http://www.nbb.be/pub/)).

### 2.2 NON-CASH PAYMENTS

Deposit money comprises sight deposits held by non-financial economic agents with financial intermediaries legally entitled to receive such deposits (i.e. credit institutions and the Post Office).

There is no statutory definition of current accounts. According to the regulation (Royal Decree of 24 November 1937) governing the financial data which the banks have to submit to the NBB and the CBFA on a monthly basis,

<sup>1</sup> ATMs are operated by the Belgian banks (see also page 84). Atos Worldline is involved only in the processing of off-us ATM transactions.



current accounts are those from which deposited money can be withdrawn immediately.

Royal Decree No 56 of 10 November 1967 obliges businesses to hold an account to which credit transfers can be made by their customers. These are generally current accounts.

For credit transfers, the Law on the value date of bank operations (10 July 1997) stipulates that a maximum of one working day may elapse between the debiting of the principal's account and the crediting of the payee's account.

For other payment instruments, there are no formal regulations governing practices regarding value dates, and maximum time-limits for crediting counterparties are not statutory. Credit institutions must execute payment orders promptly, on the basis of general contract law. In the case of cheques which are in the process of being collected, the credit is temporarily revocable.

The principle of allowing providers of payment services to charge current account holders for such services was adopted in 1990.

### 2.2.1 CREDIT TRANSFERS

The most commonly used payment medium in Belgium is the credit transfer. The customer making the payment gives the order to its bank either in paper form – handed in at the branch or sent by post – or in automated form (self-service banking, telephone and internet banking, or magnetic media). An estimated 731 million credit transfers were made in 2005, with a total value of €18,922 billion.

A significant development can be seen in the growing popularity of electronic forms for customers' payment orders, in parallel with the growing popularity of self-service banking and home banking products. More and more firms are communicating their payment orders via magnetic media or telecommunications, which obviates the need to capture the data within the financial system. It is estimated that 598 million payment orders – 81.5% of all credit transfers

– were submitted in non-paper form in 2005, by comparison with 312 million – 61% – in 2000.

### 2.2.2 CHEQUES

The use of cheques issued by individual credit institutions and postal cheques, which until 1992 were the second most frequently used cashless payment instrument after the credit transfer, has tended to diminish by an average of 10% per year since 1995, in line with the increasing use of electronic money and debit and credit cards and the effect of introducing charges on sight accounts, which discourages customers from using manual means of payment. Furthermore, the phasing out of the eurocheque (and its typical guarantee) at the end of 2001 has increased the pace of decline in the use of cheques.

Unlike other cashless payment instruments, cheques can be used for several successive payments, by means of endorsement. However, this practice is limited.

In 2005 15.69 million cheques were issued, with a total value of €68.83 billion.

### 2.2.3 DIRECT DEBITS

The direct debit mechanism was created in 1980. Its purpose, like that of the standing order, is to simplify the execution of regular payments. It is estimated that 218.98 million payments were executed under direct debit agreements in 2005 (by comparison with 142.3 million in 1999). Direct debits are used mainly for paying public utility bills.

Direct debits are based on a contract stating that the payer authorises the payee to debit the payer's account for specified claims. All signatories to the contract (payer, payee, debtor and payer's bank) may repeal it. The revocation comes into effect no more than ten days after the payer's bank has been informed.

## 2.2.4 PAYMENT CARDS

### *Debit cards*

Debit cards, issued by credit institutions under their own logos in association with the logos of Bancontact and Mister Cash (the two former ATM/POS networks which merged to form Banksys in 1987, which was then bought by Atos Worldline at the end of 2006), can be used at ATM and POS terminals. The debit card function and the e-money function are generally packed on the same support. These are hybrid cards with not only a magnetic strip, but also an EMV chip, which is used both for online operations requiring the use of a PIN (POS payments, cash withdrawals at ATMs, loading of e-purse, etc.) and for offline operations (e-money payments).

Atos Worldline (see Section 1.3) is responsible for the management of the ATM/POS network. Its duties include the monitoring of bank-issued cards and the generation and transmission to customers of PIN codes for all bank cards. Atos Worldline participates directly in the ACH (see Section 3.3) and acts as an exchange for all ATM and POS operations to be cleared in this system, although the ongoing implementation of Atos Worldline's "Online-to-the-banks" application has led to the exchange and settlement in the ACH of more aggregated data.

On 31 December 2005 there were some 15.9 million debit cards in circulation, all of which provided access to both ATM and POS terminals.

The cost to the consumer of using debit cards at ATM and POS terminals consists, in theory, of only an annual fee, which is generally included in a package made up of current account management and operations. A small minority of retail outlets charge for POS transactions.

Over the last few years, the use of debit cards has gradually become internationalised. Within the framework of the MasterCard Europe community, holders of Bancontact/Mister Cash

cards also have access to ATMs in an increasing number of other European countries. Similar links have been established on a bilateral basis between Banksys and other foreign networks. Since 1998 holders of Bancontact/Mister Cash cards have also been able to pay abroad at Maestro POS.

### *Delayed debit cards*

Delayed debit cards (American Express, Diners Club, MasterCard and Visa) are widely accepted in Belgium. As a result of vigorous promotional efforts by the companies concerned, the number of cards in circulation increased considerably until 1999, from some 326,000 cards at end-1985 to around 2,883,000 at end-1999. Since 1999 this growth in the number of delayed debit cards has slowed, with the total number of cards standing at around 3,259,000 in 2005. In 2005 738.53 million delayed debit transactions were effected in Belgium, with a total value of €41.43 billion. 30.64 million of those transactions were payments effected using foreign cards, and these had a total value of €3.9 billion.

Atos Worldline accounts for the distribution of the majority of Visa and MasterCard cards and is responsible for the processing and authorisation of transactions executed using these cards.

Payment procedures are automated in most cases. At the point of sale, authorisation takes place online, details of the transaction are immediately recorded by the issuing company's computer system and a slip showing information regarding the transaction is printed out. The nationwide ATM network can also be accessed using credit cards (with the exception of Diners Club cards).

Fixed liability tariffs for the loss of a delayed debit card are laid down in legislation (Royal Decree of 24 February 1992).

### *Electronic money*

There is no software-based electronic money in Belgium. A multi-purpose prepaid card scheme

called PROTON was launched by Banksys (now Atos Worldline) in February 1995 and expanded nationwide at the beginning of 1998.

PROTON is a microprocessor card (also called a “smart card”) which stores monetary value, as opposed to tokens or units of service (as in the case of a phonecard). It is designed to be a substitute for cash (and small-value cheques) and is targeted at payments of less than €13 at local retail outlets, vending machines, car parks, ticket machines and payphones, as well as on public transport. It can be loaded with amounts ranging from €5 to €125. Card-to-card payments are not possible.

PROTON is a monocurrency system, with payments being made in euro. Loading transactions involve the verification of a PIN entered by the user and of the funds available on the account. The cards can be reloaded at ATMs or public telephone booths. A “smartphone”, which enables the user to reload the card at home and to use the card to make payments to a service provider over the telephone, has also been available since the end of 1997. Furthermore, card-based payments can also be made via the internet by means of a plug-in terminal for personal computers.

During a transaction, money is transferred from the PROTON card to the retailer’s terminal (offline terminals or vending machines). As only small amounts are involved, and in the interests of speed and convenience, these payments are made without using a PIN. The retailer can transfer the money to its bank account simply by making a telephone call from its terminal (using the modem). The cardholder can consult the balance on the PROTON card at an ATM, a public telephone booth, a service provider’s terminal or by means of a small personal pocket device.

Electronic purses are issued only by credit institutions. It is up to each institution to set the fees (if any) that it charges to cardholders. Annual fees charged to cardholders range from €0 to €5.

The use or downloading of the cards must remain free of charge. Banksys is responsible for the tariff policy applied to retailers. Retailers must pay a percentage (0.55%) of the amount stored in their terminals, plus a fixed fee (depending on the contract) per collect. At the end of December 2005 more than 9,616,000 cards with an e-money facility had been issued; the total amount outstanding was around €138.3 million. A daily average of 436,550 purchase transactions were made in December 2005 for an average amount of €4.96.

The PROTON technology has already been adopted by a large number of countries, making it a de facto international standard.

#### *Single-purpose prepaid cards*

Single-purpose prepaid cards are used mainly in the telephone industry. In Belgium, the first card of this kind – the RTT-Telecard, launched in 1979 – was a magnetic strip-type card which enabled users to make national and international telephone calls from payphones. Although PROTON can now be used in payphones, such cards (now called Belgacom-Telecard) still exist and are now chip-based. All telephone operators also offer prepaid cards.

Other service providers, such as urban transport companies, make use of similar cards, albeit on a smaller scale.

#### *POS network*

Atos Worldline manages the POS network and terminals online on behalf of the issuing credit institutions. These terminals are accessible by means of magnetic strip or chip-based cards and secret PIN codes.

Each transaction triggers various immediate checks:

- blacklist (stolen cards, etc.);
- balance on the current account, either on the basis of the balance at the previous day’s close, taking into account the total operations effected on that day by means of the card, or

on the basis of the actual balance (depending on the cardholder's institution); and

- daily and weekly transaction caps.

This online authorisation procedure eliminates fraud and unauthorised overdrafts.

By 31 December 2005 there were 101,094 POS terminals.

Whereas the POS terminals installed at petrol stations and large retail outlets are heavyweight terminals linked via rented lines to the network's computer centres, those installed at small retail outlets and in other sectors involve the use of the public switched telephone network (PSTN).

The interbank network can be accessed not only by using bank debit cards, but also by means of credit cards and a range of in-house cards (mainly those issued by petrol companies, which can be used exclusively at petrol stations selling their brand). These companies make use of the infrastructure of the interbank network, but also offer additional advantages, such as discounts or the possibility of using the card abroad. These services are specifically aimed at attracting corporate customers with fleets of vehicles.

#### **ATM networks**

Atos Worldline manages the ATM network and terminals online on behalf of the issuing credit institutions. ATMs are accessible by means of magnetic strip cards and secret PIN codes.

In July 2005 Banksys (now Atos Worldline) handed over the ownership of all of its ATMs to commercial banks. Operations supported by these ATMs (open access ATMs) are as follows: cash withdrawals, the checking of balances on current accounts, the alteration of PIN codes and the loading of PROTON cards. Each transaction triggers various immediate checks (see the "POS network" section).

In addition, several credit institutions offer ATM facilities (limited access ATMs) to their own customers within the framework of self-service banking units. These ATMs allow other types of operation, such as the ordering of documents (cheques or credit transfer forms) and transfers from current accounts to savings accounts. In early 2006 the major credit institutions agreed to grant access to self-service banking units to customers of other credit institutions, thus increasing the number of ATMs available to the public.

By 31 December 2005 there were 13,499 ATMs, of which 7,290 were self-service banking units.

## **2.3 RECENT DEVELOPMENTS**

### **2.3.1 SECURITY OF E-PAYMENTS**

Atos Worldline already offers the option of paying with the PROTON card via the internet by means of a plug-in terminal for personal computers (see Section 2.2.4). Working in close cooperation with the credit card companies, Atos Worldline has developed a system of hardware authentication for online transactions and is now working on an application which will allow end-to-end secure electronic transactions (SETs) from the customer, through Atos Worldline's infrastructure, to the supplier. The system could also be extended to Wireless Application Protocol (WAP) and Interactive Television (iTV) applications. Payments with Bancontact/Mister Cash are also possible over the internet.

## **3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS**

### **3.1 GENERAL OVERVIEW**

There are three domestic interbank payment systems in Belgium: ELLIPS, the CEC and the Clearing House.

ELLIPS is an RTGS system designed to process large-value credit transfers. The CEC is the

Belgian ACH for retail payments; it handles both credit and debit orders. These automated systems are the two pillars of the interbank payments system in Belgium. Together they process more than 99.5% of interbank payments by volume and 99.4% by value.

The remaining interbank payments are processed by the Clearing House, a paper-based system which operates from the head office of the NBB in Brussels. This system handles payments which are not yet accepted by the CEC or ELLIPS.

All systems operate solely in euro.

## 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: ELLIPS

### 3.2.1 OPERATING RULES

ELLIPS is a non-profit-making association which has its registered office at the NBB in Brussels. Its operating rules were established by its General Assembly. The system has been operational since 24 September 1996.

Its decision-making bodies are the Board of Directors and the General Assembly, both of which are composed of representatives of its members. The NBB acts as Chairman of the Board. It runs the system and is responsible for its daily management on the basis of a contract between the NBB and ELLIPS. It is also a participant in the system.

### 3.2.2 PARTICIPATION IN THE SYSTEM

ELLIPS has a two-tier system. Direct participation in ELLIPS is limited to the Post Office, credit institutions authorised to offer services in Belgium and credit institutions operating on the Belgian market within the scope of the freedom of establishment and the freedom to provide services within the EEA. The last category implies the possibility of remote participation. The NBB is a participant by right.

Direct participants must hold an account with the NBB and meet several conditions as

described in the rules regarding operational capacity, solvency and legal guarantees.

The direct participants provide a representation service for other credit institutions (indirect participants). The payment orders of an indirect participant are processed in ELLIPS through its direct participant, which is also responsible for the settlement of the operations.

ELLIPS is also the Belgian component of TARGET – the European RTGS system in euro. Thus, participating in ELLIPS implies access to the TARGET system.

By the end of 2005 ELLIPS had 15 direct participants and 70 indirect participants.

### 3.2.3 TYPES OF TRANSACTION HANDLED

ELLIPS processes credit transfers in euro only. It processes both interbank (MT 202) and customer payments (MT 103/103+), and both domestic and cross-border payments. Cross-border payments can be made to banks in any of the EU Member States participating in TARGET, even those not participating in Stage Three of Economic and Monetary Union.

The use of TARGET is compulsory for transactions directly related to the monetary policy of the ECB.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

Transfers received by ELLIPS are checked immediately for validation. When a payment is rejected, a SWIFT message is sent to the initiator. Accepted orders are recorded in a file and processed individually and chronologically by the system in accordance with the FIFO (“first in, first out”) principle. If there is no waiting queue for the sender, ELLIPS processes the transaction as follows:

- the information necessary to settle the transaction is extracted from the payment instruction and sent to the NBB current account application;

- if sufficient funds are available on the settlement account held by the sending ELLIPS participant with the NBB, the payment is settled (i.e. the sender is debited and the beneficiary credited) and is immediately finalised. ELLIPS is informed and instantly sends the relevant detailed messages to the beneficiary. If insufficient funds are available, the current account application informs ELLIPS of this fact, and ELLIPS puts the payment instruction in the waiting queue until sufficient funds are available to execute it.

In order to ensure a smooth flow of payments, a mechanism to bypass the FIFO waiting queue exists. If a waiting queue already exists for the sender in question, the value of the newly accepted payment is compared with that of payments already in the waiting queue with the same priority. If the value of the new payment is smaller than that of all other payments in the waiting queue, and if no payment with a higher priority is present in the queue, the new payment is processed as if no waiting queue existed. Otherwise, the new payment is placed in the waiting queue. Certain payments may be afforded preferential treatment, and a higher priority code is given to such payment messages. An increase in the sender's available funds triggers the processing of the payment messages in the waiting queue. Payment messages with a higher priority code are always processed first.

At 5 p.m. CET ELLIPS stops accepting customer payments (SWIFT MT 103/MT 103+), with the exception of cross-border payments from TARGET. At 5.05 p.m. CET it tries to process the payments which are still in the waiting queue. In such a situation, ELLIPS carries out a collective unblocking procedure.

At 6 p.m. CET ELLIPS stops accepting interbank payments (MT 202), with the exception of cross-border payments from TARGET. Again, at 6.05 p.m. CET a collective unblocking procedure is initiated for interbank payments.

If the unblocking of both types of message would not result in the execution of all payments still remaining in the waiting queue at that moment, all cross-border payments are deleted from the waiting queue.

Payments related to monetary policy (orders for payments to the deposit account and/or the monetary reserve account) may be presented until 6.30 p.m. CET.

All domestic payments still in the waiting queue when ELLIPS closes are deleted at that time. Under normal circumstances, ELLIPS closes at 6.30 p.m. CET.

Table 1 ELLIPS' time schedule

Operations	Schedule
– ELLIPS' opening time (start of payment validation and settlement)	7 a.m. CET
– Cut-off time for customer payment orders (MT 103/103+)	5 p.m. CET
– Cut-off time for interbank payment orders (MT 202)	6 p.m. CET
– Cut-off time for orders for payments to the deposit account and/or the monetary reserve account	6.30 p.m. CET
– ELLIPS' normal closing time	6.30 p.m. CET
– Treasury module closing time	7.30 p.m. CET

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

Data exchanges between ELLIPS and its members take place exclusively via telecommunications links through the SWIFT network.

ELLIPS has two different types of business continuity environment. The first (the secondary site) is located in Brussels near the "live system" (the primary site). It can assume processing activities in the event of a failure of the primary system by using a mirrored database and a full set of external communications links. The second continuity environment (the third site) is located 25km from the main centre in Brussels. The database in the second continuity environment is based on a copy of the database from the previous ELLIPS day, to which the ongoing logging (which is continuously sent to



this site) is applied in order to create an exact copy of the database of the primary site.

### 3.2.6 SETTLEMENT PROCEDURES

Each transfer is settled individually by debiting the sender's current account with the NBB and crediting the beneficiary's account. The payments become final immediately (see Section 3.2.4).

### 3.2.7 CREDIT AND LIQUIDITY RISK

As ELLIPS is an RTGS system, payments are settled one by one on the settlement accounts held by participants with the NBB. If sufficient funds are available on the account of the sending participant, the individual transactions are booked instantly, thus becoming final immediately. Several instruments contribute to ensuring sufficient liquidity: the monetary reserves, free intraday credit guaranteed by collateral, the marginal lending facility and the deposit facility.

### 3.2.8 PRICING

For domestic payments, each participant pays an annual contribution to cover the fixed costs. The variable costs are shared on the basis of the number and characteristics of the payments. The costs of investments which fall outside the scope of the links between ELLIPS and TARGET are shared evenly between the participants. Every new participant joining ELLIPS pays an entry fee determined by the Board and based on historical investment costs.

For cross-border payments (i.e. in TARGET), costs are recovered on the basis of one single tariff per payment, billed to the initiator and based on the number of transactions made by the participant in question within a single system, in accordance with a regressive scale.

The costs of the treasury module are distributed on the basis of the extent of the computer resources used by the different types of query.

### 3.2.9 THE TREASURY MODULE

An online treasury module provides participants with a range of information on what has taken place in the payment systems during the day. A participant can systematically obtain information on:

- the possibility of credit with the NBB;
- the situation as regards its current account with the NBB;
- transactions on its current account with the NBB and, more specifically, ELLIPS payments;
- transactions from and to other RTGS systems participating in TARGET;
- the situation as regards the peripheral systems;
- the queue of transactions waiting to be carried out; and
- the queue of incoming transactions waiting to be addressed.

## 3.3 THE RETAIL PAYMENT SYSTEM CEC

### 3.3.1 OPERATING RULES

The CEC is a non-profit-making organisation created in 1974. As in the case of ELLIPS, the Board of Directors, which is made up of representatives of the most important members and is chaired by the NBB, takes all decisions on new rules.

The NBB also acts as operational manager of the system.

### 3.3.2 PARTICIPATION IN THE SYSTEM

The CEC's statutes stipulate that all credit institutions legally entitled to operate in Belgium, as well as the Post Office, the NBB and some payment organisations (e.g. Atos Worldline), may make use of the services of the CEC either directly, as members, or through other participants, as indirect members. Direct

members must fulfil certain operational (regarding the technical ability to operate), legal (a legal opinion being required for members established under foreign legislation) and volume-related criteria. All institutions operating in the CEC must be direct or indirect members of the Clearing House.

On 31 December 2005 the CEC comprised 22 direct members and 61 indirect members.

### 3.3.3 TYPES OF TRANSACTION HANDLED

The CEC is used only for exchanging retail payments. The main categories of operation include credit transfers for up to €500,000, truncated cheques for up to €50,000, unpaid cheques, direct debits, unpaid direct debits, bills of exchange, loading operations for e-purses and ATM/POS transactions. This last category represents approximately 12% of the total number of operations.

In 2005 the CEC processed a daily average of 3.8 million operations (the largest number of operations in one day being 9.2 million) for an average daily amount of €2.5 billion. The six largest participants accounted for almost 82% of the total number of transactions handled by the system.

### 3.3.4 OPERATION OF THE TRANSFER SYSTEM

The CEC system operates on a round-the-clock basis for five days a week and is operational from 9 a.m. to 5 p.m. CET on Saturday without a cut-off point. The remitting institution generates files of messages to be sent, with different application codes depending on the type of message. Data are transferred to the CEC via telecommunications, or via magnetic media in backup situations. There is no exchange of paper payment documents (including cheques), as these are retained (truncated) by the institution receiving them from the customer. Following certain checks, the messages are sorted by addressee and then sent. Participants may enquire about their treasury positions via telecommunications during the day. Participants cannot revoke their operations once they have confirmed them.

**Table 2 CEC time schedule for settlement on day D**

Operations	Cut-off times
Direct debits and unpaid direct debits	10.30 a.m. CET
Credit transfers	1.30 p.m. CET
Bills of exchange	1.30 p.m. CET
Cheques and unpaid cheques	2.15 p.m. CET
Higher-value <sup>1)</sup> or urgent credit transfers	3 p.m. CET
Daily cut-off time	3.15 p.m. CET

1) Value between €125,000 and €500,000.

The settlement of data exchanged after these deadlines takes place on the next value date.

### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

The exchange of data between the CEC and its members takes place via telecommunications with compulsory encryption. Data are handled using teleprocessing, and digital media (CDs/DVDs) are used only as backup. The CEC operates with a very high degree of reliability. Immediate contingency facilities exist both within the head office of the NBB and in an external backup centre.

### 3.3.6 SETTLEMENT PROCEDURES

The settlement of the CEC balances is net and multilateral. The amounts to be cleared as a result of the exchanges are calculated for each member and settled on a current account at the NBB. This account can be either that of a settlement bank (i.e. an ELLIPS participant) or the member's own account. All exchanged payments are settled on the same day, provided that they have been remitted before the cut-off time.

### 3.3.7 CREDIT AND LIQUIDITY RISK

The CEC multilateral net balances are settled through ELLIPS participants. Risks are also limited on account of the participation criteria (see Section 3.3.2) and a maximum unit value per type of operation.

### 3.3.8 PRICING

The costs of the CEC system are shared between its members on the basis of transaction volumes, so that the NBB's costs are fully covered. Direct members must also pay a fixed annual fee. In

addition to these system costs, an interbank pricing system exists, whereby every receiving bank pays a certain amount to compensate for the remitter's data exchange costs.

### 3.3.9 MAIN PROJECTS AND POLICIES BEING IMPLEMENTED

In the future the CEC is to process all retail transactions, including those which are currently still exchanged in the manual clearing house. This goal should be achieved through the modernisation of some paper-based payment instruments, such that these can be exchanged in an automated way through the CEC.

The CEC will, as a short-term solution, most probably be technically upgraded such that it is able to exchange the new SEPA instruments. In the long run, the Belgian banks have decided to leave the current Belgian ACH and will process all SEPA payments through a PE-ACH-compliant infrastructure. This means that new technologies (e.g. XML) will need to be implemented, even as part of the short-term solution.

## 3.4 THE PAPER-BASED SYSTEM: CLEARING HOUSE

### 3.4.1 OPERATING RULES

The Clearing House (an association without a specific legal structure) is governed by its Board of Directors, which is composed of representatives of the most important member institutions and chaired by the NBB, which also acts as system operator. The Board determines the operating rules. The General Assembly, in which every participant has a vote, draws up the statutes of the association.

### 3.4.2 PARTICIPATION IN THE SYSTEM

Membership of the Clearing House is granted by a decision of its General Assembly. All credit institutions legally active in Belgium (plus the Post Office and the NBB) may participate.

As at 31 December 2005 the Clearing House comprised 25 direct participants and 57 indirect participants.

### 3.4.3 TYPES OF TRANSACTION HANDLED

The Clearing House handles only paper-based payment instruments which cannot be exchanged automatically in ELLIPS or in the CEC, i.e. mainly cheques for more than €50,000 and corrections of CEC operations. The Clearing House no longer processes credit operations.

The total value of these operations is minimal compared with that of the ELLIPS transactions. In 2005 their daily average value amounted to approximately €194 million for a daily average volume of 2,300 payments.

### 3.4.4 OPERATION OF THE TRANSFER SYSTEM

The Clearing House processes paper-based transfer orders within and between its various branches (by post or courier service). The announcement and remittance of operations are accepted from 9 a.m. to 12.15 p.m. CET; the sorting of envelopes by the staff of the Clearing House ends at 12.30 p.m. CET, and the withdrawal and confirmation of operations takes place between 12.30 p.m. CET and the system cut-off time of 3.15 p.m. CET. Operations cannot be revoked unless there is a bilateral agreement in place. Payments become final on the same day.

Table 3 Clearing House time schedule

Operations	
Opening	9 a.m. CET
Announcement and remittance	12.15 p.m. CET
Sorting	12.30 p.m. CET
Withdrawal and confirmation	3.15 p.m. CET
Daily cut-off time	3.15 p.m. CET

### 3.4.5 TRANSACTION PROCESSING ENVIRONMENT

The operating rules of the Clearing House were modified considerably following the launch of the ELLIPS system. The few remaining paper-based operations are exchanged physically using mailboxes installed on the premises of the NBB, without the compulsory presence of the credit institutions' representatives, while the related financial data are announced via telecommunications either at the member

banks' head offices or in the Clearing House (as a backup measure). Operations are confirmed electronically by the addressee on receipt of the payment documents.

#### **3.4.6 SETTLEMENT PROCEDURES**

At the end of the day, the net balances of each participant are automatically settled on a current account at the NBB. This account can be either that of a clearing bank (i.e. an ELLIPS participant) or the participant's own account. All exchanged operations are settled on the same day.

#### **3.4.7 CREDIT AND LIQUIDITY RISK**

Since the Clearing House is a peripheral system like the CEC, the multilateral net balances are settled through ELLIPS participants. Risk is also limited on account of the participation criteria (see Section 3.4.2).

#### **3.4.8 PRICING**

The costs of the Clearing House are borne by the participants, which pay a budgeted fee per remitted envelope as well as a fee for the use of the computer application and courier services.

#### **3.4.9 MAIN PROJECTS AND POLICIES BEING IMPLEMENTED**

In order for the interbank exchanges to become fully automated, the few thousand daily transactions which continue to be handled by the Clearing House will have to be eliminated. Several steps have already been taken in order to introduce new types of operation to the CEC and replace the payment instruments regarded as obsolete with more modern instruments.

### **4 SECURITIES SETTLEMENT SYSTEMS**

#### **4.1 TRADING**

##### **4.1.1 OFF-EXCHANGE MARKET IN LINEAR BONDS, STRIPS AND TREASURY CERTIFICATES**

The off-exchange market in linear bonds, strips and Treasury certificates was established as a regulated market within the meaning of the EC Investment Services Directive by the Royal

Decree of 22 December 1995. The Law of 2 August 2002 on the supervision of the financial sector and on financial services has changed the regulatory framework. The Securities Regulation Fund, as "market operator" of the regulated market in linear bonds, strips and Treasury certificates, draws up the rules governing its market, determines the conditions of membership, ensures transparency, lays down the rules and procedures for reporting and disclosing transactions, monitors compliance with all of these rules and imposes penalties for infringements. The Law designates the CBFA as the sole supervisory body, giving it responsibility for monitoring compliance with the reporting rules, the code of conduct and the rules on market abuse. However, the Royal Decree of 16 May 2003 gives the Securities Regulation Fund, as market operator, responsibility not only for organising the off-exchange market and supervising its market rules, but also for supervising the public order rules and the reporting rules. Within the supervision of those public order and reporting rules, the Securities Regulation Fund investigates on behalf and under the ultimate responsibility of the CBFA. As soon as an investigation has been concluded, the Fund transmits the file to the CBFA, which from then on decides whether specific measures or penalties need to be imposed.

The majority of secondary market transactions are phone-based OTC transactions. This market is sustained by a team of (around 15) primary dealer market-makers appointed by the Belgian Treasury with an obligation to act as market-makers on the secondary market, in particular on MTS Belgium. On this electronic trading platform, all linear bonds and Treasury certificates, as well as a certain number of strips, are quoted on a real-time and price-driven basis. Transactions are also concluded on other electronic trading platforms – both the inter-dealer platforms EuroMTS and ICAP BrokerTec, and the multi-dealer platforms TradeWeb and BondVision. Electronic platforms account for approximately 40% of outright transactions on the off-exchange market.

OTC transactions, including EuroMTS and MTS Belgium transactions, are settled through the National Bank of Belgium SSS (see Section 4.3.1), as well as through Euroclear Bank (see Section 4.3.3) and Clearstream, quite often after being netted in LCH.Clearnet Ltd.

#### 4.1.2 EURONEXT BRUSSELS

##### *Legal and institutional aspects*

In September 2000 the stock exchanges of Paris, Amsterdam and Brussels (now Euronext Brussels) merged, becoming wholly owned subsidiaries of Euronext NV, a Dutch incorporated structure regime holding company. Since the beginning of 2002 the Portuguese stock exchange and the London derivatives exchange Liffe have also been part of the Euronext group. The Euronext merger has created a single organisation with one line of command for the group's exchanges. Euronext NV has a two-tier board structure comprising its Managing Board and its Supervisory Board.<sup>2</sup>

The Managing Board of Euronext NV is responsible for the company's general policy, including the principles for the organisation of the markets and the clearing and settlement of transactions. Euronext has created an integrated cross-border stock and derivatives trading market, with one trading system, one central order book and a single set of trading rules. Euronext Paris, Amsterdam, Lisbon and Brussels trades are cleared via the French central counterparty LCH.Clearnet SA (see the section on LCH.Clearnet SA in the French country chapter). The settlement of Euronext cash market trades will be integrated in the course of 2008 (see Section 4.3.3).

From a regulatory point of view, the Euronext exchanges are regulated markets recognised in their national jurisdictions, but national rules (e.g. regarding listing requirements, membership, enforcement of trading and surveillance) are in the process of being harmonised. In the case of Belgium, the main legislation governing the Euronext Brussels

markets is currently contained in the Law of 6 April 1995 on secondary markets, the Law of 2 August 2002 on the supervision of the financial sector and on financial services, and implementing regulations. The CBFA acts as the market authority of Euronext Brussels.

##### *Operational aspects*

###### – Cash markets

For Euronext Brussels, depending on the regulatory listing requirements regarding company size and free floats, securities are traded on the primary or secondary markets. These markets are regulated markets within the meaning of the EC Investment Services Directive. Most securities are traded on the primary market, where shares, bonds, loans and rights offered by listed companies are quoted. The secondary market is mainly a market for real estate certificates. In addition, the Free market, an unregulated Euronext Brussels market, lists smaller companies. The Alternext market segment, listing small and mid-caps, was launched in June 2006.

Depending on their liquidity, securities are traded continuously or via call auction trading. The most liquid securities are traded continuously. Continuous market trading hours are currently from 9 a.m. to 5.30 p.m. CET. Price-fixing via auction trading takes place once or twice a day. The markets are order-driven, and pretrading takes place on an anonymous basis. Broker "market members" can act as specialists, with obligations regarding orders and price spreads in selected stocks, thus providing liquidity.

The cash market transactions of all Euronext markets are traded on a single trading platform – the Nouveau Système de Cotation (NSC). As an automated electronic trading and support system is used, trade matching between direct market participants takes place by T+0.

<sup>2</sup> For more information regarding the Euronext exchanges, see also the country chapters of France, the Netherlands, Portugal and the United Kingdom.

– Derivatives markets

The Euronext Brussels derivatives market is a regulated market within the meaning of the EC Investment Services Directive. It trades futures, options and indexes and forms part of the umbrella body Euronext.liffe. A single trading platform, LIFFE.CONNECT, is in operation for all Euronext derivatives markets.

## 4.2 CLEARING

Euronext Brussels cash market and derivatives market trades are cleared via the Paris-based central counterparty LCH.Clearnet SA, which becomes the buyer to the seller and the seller to the buyer (see the section on LCH.Clearnet SA in the French country chapter).

## 4.3 SETTLEMENT

### 4.3.1 NATIONAL BANK OF BELGIUM SSS

#### *Institutional and legal aspects*

Articles 3 and 12a (and the subsequent amendments thereto) of the Law of 2 January 1991 relating to public securities and the instruments of monetary policy stipulate that public debt is to be in dematerialised form, as well as establishing the SSS managed by the NBB (the National Bank of Belgium SSS). This settlement system is thus fully owned by the NBB and operated by its Financial Markets Department. These articles were inspired by the general philosophy of Royal Decree No 62 of 10 November 1967, which set out the rules applicable to fungible securities under Belgian law.

Legal steps have also been taken in order to protect investors' interests, particularly in the event of the default of the holder of a dematerialised securities account, e.g. as regards the segregation of assets. Thus, the owners of securities held with the National Bank of Belgium SSS have co-ownership rights to these securities, and this also applies in the very hypothetical case of the insolvency of the NBB. The protection of holders of securities

with regard to the irrevocability and finality of settled transactions (also in the event of insolvency on the part of a counterparty) was already ensured by Article 157 of the Law on the legal status and supervision of credit institutions of 22 March 1993 (as extended by the Royal Decree of 28 January 1998) and was further enhanced by the incorporation into Belgian law of the EC Settlement Finality Directive (which was achieved by means of the Law on settlement finality in payments of 28 April 1999, as amended by the Royal Decree of 18 August 1999).

The Law of 6 August 1993, which governs transactions involving certain securities, introduces a new tax system for fixed income securities deposited in a settlement system. It also assigns to the Treasury responsibility for the collection and payment of the withholding tax due from certain beneficiaries of securities income.

The Securities Regulation Fund is responsible for the supervision of the holding of accounts of dematerialised public debt securities.

The National Bank of Belgium SSS has a single category of member – direct participants – encompassing a very wide range of institutions entitled to apply for membership: credit institutions established in the EU, stockbroking firms established in the EU, the Treasury administration, the NBB and SSSs.

#### *Operational aspects*

Each participant joining the system has different accounts for the securities held on its own account, for those held on behalf of third parties and for those pledged for collateralisation purposes.

The settlement of the cash leg of DvP transactions takes place in central bank money on the participant's current account in the books of the NBB. Participants thus benefit from the very close integration of cash and securities elements within one single entity.



Repo transactions for Belgian dematerialised public securities traded on the Repoclear or EuroMTS platforms are in practice cleared within Repoclear, a service provided by LCH.Clearnet Ltd. Acting as a central counterparty, Repoclear performs a multilateral netting process once a day for all the trades concluded between counterparties which have been sent for clearing. The settlement of the netted movements stemming from Repoclear is subsequently ensured within the settlement process of the National Bank of Belgium SSS.

During the course of the day incoming notifications are entered into the system as quickly as possible. As soon as a notification has been registered, the system tries to match it. To this end, the notification of the counterparty must already exist. When both notifications have been entered into the system, all details are compared, and the match is successful if no discrepancies are found.

The bulk of the orders, sent to the system via the SWIFT network, are automatically authenticated, subject to an exchange of SWIFT keys between the NBB and the participant concerned.

Participants located in Belgium can also use a secure IT communications network (developed by the Belgian banking community) to send their orders to the settlement system.

In order to reduce risks relating to errors or omissions on the part of counterparties, the system regularly updates the status details of participants' notifications. Participants can verify the status of their instructions online and react in the event of mismatched instructions.

Several definitive batches (around 20 batches a day) are run in the course of the working day. Each of these batches performs the gross settlement of eligible notifications, meaning that each transaction gives rise to the simultaneous settlement of one cash and one securities movement (BIS DvP Model 1). In other words, the process checks the effective

provision of cash (for the buyer) and securities (for the seller) before settling the relevant transaction.

The batches are run between 8 a.m. and 4.30 p.m. CET for FOP and DvP transactions; additional batches may occur between 4.30 p.m. and 5.30 p.m. CET, but only on an FOP basis and for collateral transactions involving a Eurosystem NCB.

Each of these batches starts at a predetermined time and tries to settle the transactions selected, provided the provision of cash and securities is sufficient. Those transactions not selected (owing to a lack of securities or cash, or to other selection criteria) remain in the queue and are examined again when the next batch is run. An optimisation programme is also run after each batch to allow the settlement of back-to-back transactions that could not be settled in the previous batch.

The admission requirements for the series of batches are determined in such a way that the system allows settlement of a broader range of transactions towards the end of the day.

The option of an automatic securities lending facility is offered to direct participants. This facility enables holders of securities which have no immediate need for them to lend them to other participants. The lent securities are covered by a pledge comprising securities taken by the system from the borrower's own holdings (on a full collateralisation basis). These loans are granted without direct intervention on the part of the lenders and borrowers. The automatic securities lending process is undertaken at the end of the last DvP settlement batch of the day, which is scheduled to be completed at 4.30 p.m. CET. The repayment procedure is also automated.

The system operates in accordance with the pooling principle, whereby a number of lenders make securities available to participants which need them in order to settle their planned transactions. This process is fully confidential,

with the identity of the lenders not revealed to the borrowers and vice versa. Automatic securities lending works in such a way as to guarantee the fair distribution of the loans in the long run in terms of the amounts offered by each potential lender.

The fee structure includes the following elements:

- a monthly flat rate fee, as well as a monthly custody fee per participant identification number in the system;
- a half-yearly lump sum to cover the cost of consultation facilities;
- a notification/movement fee per order sent; and
- payment for automatic lending.

The international holding and trading of Belgian public debt securities has also been simplified as a result of the links with the National Bank of Belgium SSS established by other SSSs.

### 4.3.2 EUROCLEAR BELGIUM

#### *Institutional and legal aspects*

The Caisse interprofessionnelle de dépôts et de virement de titres/Interprofessionele effectendeposito- en girokas (commercial name: Euroclear Belgium) is a private limited liability company established in Evere, Belgium. Before 2006 it belonged to the Euronext group. Since then it has been a full subsidiary of the Euroclear group, which comprises, among others, Euroclear France, Euroclear Nederland, CRESTCo and Euroclear Bank. Its shares are held by Euroclear SA/NV (ESA), which also provides services to the CSDs of the Euroclear group (see Section 4.3.3). Euroclear Belgium is managed by its Board of Directors and its Management Committee.

Euroclear Belgium has the status of a settlement institution under Belgian law and operates a securities settlement system. As such, it is

supervised by the CBFA and overseen by the NBB, in accordance with applicable legislation.

Its operating rules are laid down in its General Terms and Conditions. Membership requirements and the rules governing entry and exit are also set out therein. Most members fall into the categories “EU credit institution” or “investment firm”. Central counterparties and other CSDs can also be participants. Subject to certain conditions, non-European entities may also become participants.

#### *Services*

Euroclear Belgium acts as a central depository for Belgian private sector securities, providing for the safekeeping of physical and global note certificates. It holds both domestic and foreign securities. Services also include the payment of principal, interest and dividends, as well as the servicing of selected corporate actions. Finally, it provides register services to companies holding nominative securities.

Securities eligible for custody services and transfers must be fungible. These comprise Euronext Brussels-listed securities – mainly Belgian shares – and other financial instruments, including Belgian and foreign shares, bonds, warrants, investment funds and rights. Instruments can be in physical, global note or book-entry form. In 2005 legislation was passed which moved in the direction of the dematerialisation of securities in order to replace bearer securities issued under Belgian law with dematerialised securities and to prohibit the circulation of bearer securities in Belgium as from 1 January 2008. Today most securities held on accounts with Euroclear Belgium are issued as physical or global note certificates.

#### *Operational aspects*

- Messaging

The sending of messages to Euroclear Belgium is mainly SWIFT-based and takes place via the

SWIFT network. A dedicated Euroclear Belgium workstation (Satelit/Elit) can also be used, as can file transfers.

#### – Settlement

Euroclear Belgium settles both stock exchange (i.e. Euronext Brussels) transactions and OTC trades. On-exchange transactions are settled through Euroclear Belgium's forward market settlement (FMS) system, while OTC transactions are settled through its electronic matching and securities settlement (EMSS) system (see below for details).

Euroclear Belgium's CDMS system also processes unilateral securities transfers. It operates exclusively in FOP mode and without preliminary matching. The bulk of CDMS transfers consist of transfers between accounts of the same participant.

The Euroclear Belgium system is designated under Directive 98/26/EC on settlement finality in payment and securities settlement systems, which was transposed into Belgian law by the Law on settlement finality in payments of 28 April 1999. Transfer orders and netting are enforceable and, even in the event of insolvency proceedings against a participant, are binding on third parties, provided that transfer orders were entered into the system before any such insolvency proceedings were initiated.

Euroclear Belgium settles exclusively in euro. It does not maintain cash accounts for its participants, as these are held at the NBB. The cash leg of the transaction is settled in central bank money.

#### – FMS

All cash market transactions on Euronext Brussels, with the exception of those for Belgian public sector bonds, are settled via the FMS system in a rolling settlement cycle on T+3.

For on-exchange transactions, the Paris-based central counterparty LCH.Clearnet SA places

itself between the buyer and the seller. On the evening preceding the settlement date, LCH.Clearnet SA sends all settlement instructions relating to the positions to be settled for Euronext Brussels cash market transactions either to Euroclear Belgium or, since April 2004, to the Euroclear Bank settlement platform, where the settlement instructions are processed.

Via the FMS system, Euroclear Belgium organises a DvP settlement based on DvP Model 2 as defined by the 1992 BIS report "Delivery versus payment in securities settlement systems". Settlement in the FMS system takes place by means of a batch process for securities and cash, seven times a day between 6 a.m. and 2 p.m. CET. Settlement in the FMS system takes place – on the condition that sufficient securities are available – with a transfer of securities from the seller's account to the CCP or with a transfer of securities from the account of the CCP to the account of the buyer. For cash settlement, available fund balances are verified for each clearing (settlement) member for each settlement processing cycle. The payment instructions received are processed in the cash accounts held by the settlement agents at the NBB. If the cash payment is executed, the securities positions of the buyer which were previously blocked are immediately released.

Since the introduction of a T+3 rolling settlement system in December 2000, LCH.Clearnet SA has managed a centralised stock lending and borrowing system for liquid Belgian securities traded on Euronext Brussels. The facility seeks to reduce the number of delivery defaults on the settlement date, thus making settlement more efficient. Lending and borrowing takes place anonymously. LCH.Clearnet SA operates this facility. It places itself between the lender and the borrower and acts as a guarantor of the borrower's obligations vis-à-vis the lender. Euroclear Belgium acts as the system's operator.

#### – EMSS

Prior to settlement, the EMSS system provides for real-time matching, whereby both the buyer and the seller enter the details of their OTC trade. When the trade is fully matched, the transaction is ready for settlement.

The EMSS module settles OTC transactions on a trade-by-trade (gross) basis. It settles DvP transactions on a daily basis from 6 a.m. to 3.30 p.m. CET. The EMSS also processes FOP security transfers; these take place from 6 a.m. to 4 p.m. CET.

The EMSS is a DvP Model 1 system as defined by the 1992 BIS report “Delivery versus payment in securities settlement systems”. Securities transfers are processed in Euroclear Belgium, while cash transfers are processed in the NBB, with the two entities being linked. The cash delivery instruction sent to the NBB is initiated only by the reservation on a blocked account of the securities involved in the transaction. The process of cash delivery cannot be initiated in the event of a failure on the seller’s side.

Transfers are performed on a continuous real-time basis, as in the case of securities transfers in Euroclear Belgium and cash transfers in the NBB’s payment system. Transactions that are not processed at the end of the day are recycled for settlement on the following business day.

#### – Custody

Royal Decree No 62 of 10 November 1967 introduced the circulation of securities through book-entry transfers and provided for the fungibility of the (physical) securities held under its regime, also stipulating a specific custody regime. Euroclear Belgium has no ownership rights over the deposited securities that it holds. There is, furthermore, no possibility of overdrafts on participants’ securities accounts. Holders of securities are granted co-ownership rights to their securities account

holdings. Belgian law provides for the right of recovery in the event of the insolvency of any custodian, including Euroclear Belgium. Furthermore, the separation of own assets from customer assets is mandatory for accounts held with Euroclear Belgium by its Belgian participants.

#### – Links

Euroclear Belgium maintains links with four foreign CSDs, namely Euroclear France (France), Euroclear Nederland (the Netherlands), Clearstream Banking Frankfurt (Germany) and SIS SegInterSettle (Switzerland). The links with these CSDs are mainly to enable the settlement with Euroclear Belgium of equities listed on Euronext Brussels. These are operated as FOP links. Euroclear Belgium also has an account with Euroclear Bank, which in turn has an account with Euroclear Belgium. This link can operate as a DvP link.

#### 4.3.3 EUROCLEAR SYSTEM

The Euroclear System is an international central securities depository (ICSD) created in 1968 by the Morgan Guaranty Trust Company of New York. In January 2001 responsibility for the operation of the Euroclear System was transferred to Euroclear Bank SA, a Brussels-based credit institution established for the specific purpose of fulfilling this role. Euroclear Bank acts as a “limited purpose bank”, providing system participants with banking and custody services associated with the multi-currency securities settlement activities of the Euroclear System.

Euroclear Bank accepts domestic and international securities (government and public sector bonds, corporate bonds, equities, warrants, euro bonds, medium-term notes, commercial paper, certificates of deposit, etc.) and acts as a CSD (i.e. a primary place of deposit) for international securities such as euro bonds, whether acting alone or jointly with Clearstream Banking Luxembourg (CBL), the other European ICSD.

Euroclear Bank has a network of 35 links with other systems. One is a link with CBL called “the Bridge”, and the others are links with domestic markets in Europe, North and South America, Asia, Africa and the Pacific area.

Participating in those systems are a wide range of international institutions from more than 80 countries – mostly banks, custodians, broker-dealers, central banks and other institutions engaged in the management of new issues of securities.

Euroclear Bank also processes investment funds on a dedicated platform called FundSettle and provides its participants with triparty collateral management services.

In December 2000 all settlement activity for Irish government bonds (Gilts), which was previously carried out by the Central Bank and Financial Services Authority of Ireland, was transferred to Euroclear Bank on the basis of an outsourcing arrangement concluded between the Irish authorities and Euroclear.

Euroclear Bank is one of the entities that make up the Euroclear group, which also comprises: CRESTCo, the United Kingdom CSD operating the CREST system; Euroclear France, the French CSD and operator of the RGV settlement system; Euroclear Nederland, the Dutch CSD; and, since January 2006, Euroclear Belgium (EBE), the Belgian CSD for private debt and equities. All of these entities belong to Euroclear SA, which also acts as their provider of common services.

With a view to delivering a pan-European domestic market for cross-border securities settlement at low cost (the “Euroclear New Business Model”), the Euroclear group is currently preparing for the consolidation of the settlement platforms of the group’s (I)CSDs into one single platform (SAP), which should be implemented by 2010. An intermediate step in that process is planned for 2008, with the consolidation of the CSDs of the Euronext

countries (i.e. Euroclear France, Euroclear Nederland and EBe) on a common platform called ESES, which will enable Euronext to create a single order book. Even after that consolidation, all of the group’s (I)CSDs will remain separate legal entities.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE NATIONALE BANK VAN BELGIË/BANQUE NATIONALE DE BELGIQUE

Generally speaking, the NBB makes use of the National Bank of Belgium SSS and Euroclear Bank for two main purposes: (i) the holding and management of its own securities portfolio; and (ii) the management of the collateral offered to it by counterparties for monetary policy operations or the coverage of intraday credit facilities.





# GERMANY

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## LIST OF ABBREVIATIONS

BaFin	German Federal Financial Supervisory Authority – <i>Bundesanstalt für Finanzdienstleistungsaufsicht</i>
BBankG	Bundesbank Act – <i>Bundesbankgesetz</i>
BLZ	Bank sort code – <i>Bankleitzahl</i>
BSE	Paperless cheque collection procedure – <i>Belegloses Scheckeinzugsverfahren</i>
CAM	Customer Access Mechanism – <i>Hausbankverfahren</i>
CCC	Central Credit Committee of the central German banking associations – <i>Zentraler Kreditausschuss</i>
EADK	Electronic order placing, data transmission and account information – <i>Elektronische Auftragserteilung, Datenauslieferung und Kontoinformation</i>
ELV	Electronic direct debit system – <i>Elektronisches Lastschriftverfahren</i>
ESS	Electronic securities settlement – <i>Elektronische Wertpapierverrechnung</i>
Eurex	European exchange (common futures and options market of the German and Swiss stock exchanges) – <i>Gemeinsamer Terminmarkt für Finanzderivate der deutschen und schweizerischen Börse</i>
GSE	Large-value cheque collection procedure – <i>Großbetrag-Scheckeinzugsverfahren</i>
ICS	Information and Control System – <i>Informations- und Steuerungssystem (ISS)</i>
ISE	Image-based cheque collection procedure – <i>Imagestützter Scheckeinzug</i>
KWG	Banking Act – <i>Kreditwesengesetz</i>
RPS	Retail Payment System
RTGS <sup>plus</sup>	Real-time gross settlement system of the Deutsche Bundesbank with liquidity-saving elements (also the German TARGET component) – <i>Das Bruttozahlungssystem der Bundesbank mit liquiditätssparenden Elementen (gleichzeitig deutsche TARGET-Komponente)</i>
XETRA	Exchange Electronic Trading (electronic spot trading system of Deutsche Börse AG) – <i>Elektronisches Kassa-Handelssystem der Deutsche Börse AG</i>

## INTRODUCTION

Payment and securities settlement systems in Germany include various institutional and infrastructure arrangements and processes for initiating and transferring payment and securities transactions. Information is provided in the chapters entitled “Institutional aspects”, “Payment media used by non-banks”, “Interbank exchange and settlement systems” and “Securities settlement systems”. The development of these systems is an ongoing issue in order to improve their safety and efficiency. The main recent developments in the German payment and securities settlement system are set out below.

## CENTRAL BANK

In 2002 the Seventh Act amending the Bundesbank Act (BBankG) of 1957 introduced changes to the Bundesbank’s management and decision-making structure that were the logical consequences of the transfer of monetary policy responsibility to the ESCB/Eurosystem from the start of Stage Three of Economic and Monetary Union on 1 January 1999. Since then, an eight-member Executive Board (Vorstand) has assumed sole responsibility for running the Bundesbank. The Executive Board has replaced the central bank’s Council, the Directorate and the Executive Boards of the Land central banks. The Executive Board is the Deutsche Bundesbank’s governing body and is located in Frankfurt am Main. It consists of the President, the Vice-President and other members. As before, the Bundesbank performs diverse functions in the field of cashless and cash payment operations, banking supervision, statistics and external economics; in addition, it acts as the federal government’s fiscal agent.

## LARGE-VALUE PAYMENT SYSTEMS

The new competitive environment engendered by the introduction of the euro in 1999, with its cost pressures for all parties (system operators, credit institutions and banks’ customers), prompted the Bundesbank, with the active

support and cooperation of its customers, to develop and launch RTGS<sup>plus</sup> in November 2001 as a liquidity-saving RTGS system, thereby maintaining the specific advantages of the Euro Link System (Elektronischer Schalter; ELS) and Euro Access Frankfurt (EAF2). Thus, gross and hybrid procedures were converted within a fully integrated system, but with settlement on a gross basis. EAF2, once a benchmark for a trend towards a hybrid system, was closed at this point, whereas the ELS was operated mainly as a communication channel to RTGS<sup>plus</sup> for banks until the end of 2004. The services of the ELS are now provided by the Bundesbank’s Customer Access Mechanism (CAM). In principle, all domestic and foreign account holders can take part in CAM and be accessed by it. It was, however, developed especially for the Bundesbank’s non-bank customers and provides them with a means of access to RTGS<sup>plus</sup> and TARGET. For an interim period – up to a maximum of four years after the Bundesbank joins the TARGET2 Single Shared Platform (planned for 19 November 2007) – it will also be possible for credit institutions to indirectly participate in RTGS<sup>plus</sup> and TARGET (or TARGET2) via CAM.

## RETAIL PAYMENT SYSTEMS

In the field of retail payment processing, the introduction of a new clearing procedure for EU cross-border credit transfers (STEP2) in 2003 had an impact on the German retail payments market, as it increasingly extended its scope for qualified credit transfers to the whole European Economic Area (EEA). In Germany, the connection of several large credit institutions and of the Bundesbank’s Retail Payment System (RPS) to STEP2 ensures the full access of the German market. Furthermore, following market demand, the service level of the RPS has been improved by the introduction of additional clearing cycles, extended transaction submission deadlines and a communication procedure compatible with current interbank standards.

## SECURITIES TRADING, CLEARING AND SETTLEMENT

The extension of the scope of assets cleared via Eurex Clearing – from solely derivatives at the outset to equities traded via XETRA and on the Frankfurt floor in 2003 – contributed significantly to the mitigation of risks inherent in the securities post-trade process. Furthermore, Clearstream introduced a new settlement model based on dedicated central bank liquidity in order to achieve earlier finality and thus improve the overall risk situation. This new settlement model was implemented in stages at the end of 2003 for the night-time cycle and extended in March 2005 with the introduction of a second real-time, night-time cycle. The additional night-time window enables securities processing around 18 hours a day and additional exchanges with the ICSDs, thereby contributing to the interoperability of European SSSs.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### I.1.1 LEGAL REQUIREMENTS

In Germany, the provision of payment and securities settlement services constitutes banking business or a financial service within the meaning of Section 1 of the Banking Act (Kreditwesengesetz; KWG). The banking business includes the execution of cashless payment and clearing operations (giro business), issuance and administration of electronic money (e-money business), and the safe custody and administration of securities for the account of others (safe custody business). Financial services include the execution of payment orders (money transmission services) and the issuance or administration of credit cards and traveller's cheques (credit card business). As such, a licence as a credit institution or a financial services institution is required from the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht; BaFin), provided that the permission to conduct payment transactions is not based on special laws, as is the case for the Deutsche Bundesbank.

The responsibilities and powers of the German central bank are laid down in the Bundesbank Act of 1957 (as last amended on 22 March 2002, with effect from 30 April 2002). In accordance with Section 3 of the BBankG, the Deutsche Bundesbank "shall arrange for the execution of domestic and international payments and contribute to the stability of payment and clearing systems". In addition, the tasks of the ESCB with regard to payment systems are mentioned in Article 105(2) of the Treaty establishing the European Community, as well as in Articles 3 and 22 of the Statute of the European System of Central Banks and of the European Central Bank.

In accordance with the Act against restraints of competition of 1966 (Gesetz gegen Wettbewerbsbeschränkungen), contracts or resolutions on the uniform regulation of the

handling of payment transactions are to be reported and substantiated to the Federal Cartel Office through BaFin. Both of these offices are responsible for ensuring that undesirable developments relating to banking supervision and excessive restraining effects on competition are avoided. In particular, they must ensure that the regulations do not unilaterally disadvantage other parties involved in payment transactions, namely the banks' customers. Where no report is provided, the relevant agreements or resolutions are deemed invalid.

#### I.1.2 RULES GOVERNING PAYMENT SERVICES

The rules governing payment services in Germany are mainly influenced by and based on the following framework:

- European legislation and international standards;
- national legislation, in particular the rules of the Civil Code;
- the statutory provisions governing the Bundesbank as an integral part of the European System of Central Banks; and
- contractual agreements signed by the federal associations of the German banking industry and the Bundesbank.

Together with the rules of the Civil Code, the Insolvency Code and the Banking Act establish the main statutory framework for domestic and cross-border payment services. The Credit Transfer Act, which was integrated into the German Civil Code, provides the relevant legal basis in the form of specific rules for credit transfers, payment and giro agreements. In this respect, credit transfers are to be effected within certain time-limits: domestic in-house transactions are to be credited within one business day, domestic transactions with other credit institutions within three business days, and transactions within the EU and the EEA within five business days. The beneficiary's credit institution has another day to credit the customer's account. Other international

transactions are to be effected as soon as possible. These conditions are being implemented because of the various business relationships existing with third countries.

Furthermore, the Civil Code contains various provisions with regard to consumer protection, e.g. transparency obligations or the obligation to pay interest in the event of credit transfer delays. In the event of customer complaints in Germany, reference is made to the Credit Transfer Act by independent bodies at the banking association level and the Bundesbank level.

Special legal requirements for cheque-based transactions are also established by law. The provisions of the Cheques Act of 1933 (which fully transpose the Geneva Cheque Convention) must be observed for the collection of cheques. The Cheques Act requires the original cheque to be presented to the debtor's bank. Recently the German regulation on the cheque clearing system has been amended to allow for the processing of computer-scanned cheque images. Under the regulation, delivery of the cheque image to the Bundesbank as a clearing house is legally equivalent to the presentation of the original cheque, enabling the cheque holder to exercise its rights under the Cheques Act in the event of non-payment.

The details (technical, organisational and even, to some extent, legal) of payment transactions between credit institutions are laid down in contractual agreements signed by the federal associations of the banking industries and the Bundesbank, making such agreements binding for all credit institutions and the Bundesbank.

In addition, and complementary to the aforementioned statutory rules and agreements, the legal relationship between credit institutions and their customers is based on the general (and some more specific) terms and conditions of the banks. Similarly, the legal relationship between credit institutions and the Bundesbank is governed by the latter's General Terms and Conditions.

## 1.2 THE ROLE OF THE DEUTSCHE BUNDESBANK

The Bundesbank's activities in the field of payments can essentially be divided into three pillars: payment systems policy; oversight; and operation of its own systems. In accordance with its statutory mandate, the Bundesbank's activities are not of a private economic nature and, in particular, are not motivated by commercial objectives. Rather, the main reason for its multi-faceted involvement in payment issues is the awareness that cashless payments are of great importance in modern economies. Although neither the Bundesbank Act nor the Statute of the ESCB expressly mention responsibility for securities clearing or settlement, the Bundesbank has a vital interest in these issues, given that securities markets play a central role in the economy, as well as in monetary policy. Moreover, the central bank's monetary policy depends, to a great extent, on efficient securities markets, as central bank credit is granted only against reliable collateral. There is a consensus at both the European and the international level that securities clearing and settlement are likewise matters of key concern for central banks.

### 1.2.1 COOPERATIVE NATURE OF PAYMENT SYSTEMS POLICY

The Bundesbank is actively involved in shaping developments in cashless payments. By means of a cooperative approach, it attempts to coordinate the interests and decisions of the parties involved in cashless payments and – if necessary – to facilitate decision-making, as well as fostering developments with regard to increased efficiency and security of payments. This function is often likened to the role of a catalyst. The Bundesbank's payment policy operates at the national, European and international levels.

In the domestic context, one of the Bundesbank's tasks is to work towards shortening processing times, reducing settlement costs and increasing security.

Given the large number of credit institutions, it is particularly important that agreements on procedures and standards in the field of payments be binding for all parties concerned. Germany took a conscious decision to avoid going down the route of a sovereign regulation by parliament or the central bank. Instead, the agreements take the form of multilateral agreements concluded by common accord by all of the central associations of the banking industry. In this respect, the Central Credit Committee (CCC), which was established in 1953 and consists of representatives of the central associations of the German banking industry, plays a prominent role. The statutes of the central associations are formulated in such a way that, when signing these multilateral agreements, the associations can bind their member institutions accordingly. The Bundesbank is also involved in the CCC's payment activities. For example, the Working Party on Automation, which was established in 1959 and discusses general aspects of payment automation, is chaired by the Bundesbank. Consequently, the Bundesbank has been involved in the creation of most of these agreements and is, in many cases, also a contractual party, which means that it must enforce and comply with these provisions in its own operations. The mechanism of binding self-regulation by the market has played a key role in enhancing efficiency in German payment operations.

At the national level, the Bundesbank has also been actively involved in the dynamic development process in the field of securities settlement. The key concern, alongside efficiency, is to continuously enhance the security of clearing and settlement procedures. In particular, it has promoted settlement systems in which the clearing of the securities leg is dependent upon the successful booking of the cash leg. This also responds to the need for DvP in securities transactions. Thus, together with Clearstream, the German central depository, the Bundesbank developed an innovative guarantee concept achieving finality of processed

securities transactions overnight without any credit risks.

At the European level, the Bundesbank is involved in the ongoing development of the European payment and securities settlement environment, particularly as part of the ESCB. In addition, the Bundesbank actively follows the relevant legislative initiatives of the European Commission, including, for example, the drafting of the Payment Services Directive. With regard to the creation of a Single Euro Payments Area (SEPA), the Bundesbank participates in the national SEPA working groups set up by the German banking industry, which enables it to actively influence the debate in the European Payments Council. Furthermore, within the ESCB, the Bundesbank helps to push forward the project and is involved in drawing up the national implementation and migration plan, which is intended – as in the other euro area countries – to map out the route to the SEPA in Germany.

International coordination in the field of payment and securities settlement primarily falls to the Committee on Payment and Settlement Systems (CPSS), which was founded in 1990 and comprises representatives of the central banks of the G10 countries, Hong Kong, Singapore and the ECB. The CPSS's main purpose is to monitor and analyse developments in national payments and in securities settlement systems, as well as in cross-border settlement systems. Particular emphasis is placed on analysis to reduce the risk in payment and settlement systems. In addition to this, the CPSS coordinates the oversight activities carried out by the central banks.

### 1.2.2 OVERSIGHT FUNCTION REGARDING PAYMENT AND SECURITIES SETTLEMENT SYSTEMS

Oversight is generally understood as an activity in the public interest, aimed primarily at promoting the security and efficiency of payment and securities settlement systems and, in particular, at reducing systemic risk. The Bundesbank's oversight activities are based on

the provisions of the Bundesbank Act and the Statute of the ESCB and of the ECB as part of the Treaty establishing the European Community, as well as on internationally recognised standards and Eurosystem standards. Traditionally, the Bundesbank takes a market-oriented approach. In the past, this has proved to be so successful that there has been no need for regulatory intervention; consequently, no national legal basis for this has been established.

The Bundesbank's oversight activities involve several objectives, which can all be classified under the umbrella terms "security" and "efficiency". Security in the payments sector is, above all, about ensuring the stability of payment systems by reducing risks and implementing measures to eliminate systemic risks. This also applies to securities clearing and settlement systems, as any disruptions can affect the smooth execution of monetary policy operations and the settlement of payment transactions.

The Bundesbank oversees and monitors the security and efficiency of payment instruments, as well as payment systems. For example, in cooperation with the Federal Office for Information Security (Bundesamt für Sicherheit in der Informationstechnik), it carried out an investigation into the secure, technical features of the "GeldKarte", an electronic purse system created by the German banking industry. The Bundesbank's specific oversight activities in the context of payment systems include, for example, the oversight of the German TARGET component RTGS<sup>plus</sup>. An assessment of the German correspondent banking business is also carried out in the framework of a European survey at two-yearly intervals. The Bundesbank is also involved in the cooperative oversight of payment systems and infrastructures which have registered offices outside Germany but are of major importance for the security and efficiency of payment operations in Germany because of the services they provide. Examples include the oversight of SWIFT and CLS. For reasons of transparency and in order to avoid

any conflict of interest, the areas of oversight and operations are kept separate within the Bundesbank.

In order to institutionalise cooperation and the exchange of information regarding large-value payment systems in the EU, banking supervisors and payment system overseers from all EU Member States concluded a memorandum of understanding, which came into force on 1 January 2001. An exchange of information between banking supervisors and payment system overseers in Germany also occurs on a case-by-case basis in respect of retail payment systems and the monitoring of new developments in the payments market.

As an integral part of the ESCB and a member of the CPSS, the Bundesbank is actively involved in developing oversight standards and principles by monitoring the relevant systems' compliance with these standards and principles at the national level. These rules may be referred to as "soft law" because they do not have the status of a law and are not legally binding.

### 1.2.3 PAYMENT SYSTEMS OF THE DEUTSCHE BUNDESBANK

The third pillar of the Bundesbank's activities in the field of payment systems comprises the operation of its own systems. The Bundesbank plays a greater role in individual or large-value payments than in retail payments because of their significance for monetary policy. An overview of payment systems and services offered by the Bundesbank in the area of cashless payments is provided below.

The Bundesbank is actively involved in processing payments, with the aim of achieving the following goals:

- obtaining an adequate share of cashless payments in general;
- having, in particular, a vested interest in the processing of individual payments;



- participating in retail payments in a complementary manner;
- providing payment systems/services which are neutral with regard to competition;
- encouraging open and broad access of participants country-wide;
- promoting safe and efficient procedures; and
- contributing to a reduction in processing times.

The Bundesbank fulfils its statutory task of ensuring the processing of domestic and cross-border payments by providing clearing and settlement services to the credit institutions in the various banking groups and offering its services in the area of cashless payment transactions to holders of Bundesbank accounts at its 61 branches (as at year-end 2006). Credit institutions have the option of using the Bundesbank's facilities instead of private giro networks, bilateral clearing arrangements or other clearing options.

Owing to its relevance for monetary policy and financial market stability, the Bundesbank pays particular attention to the processing and settlement of individual payments. These payments are processed through the Bundesbank's RTGS<sup>plus</sup>, which, therefore, is of key importance to the German financial sector and is an integral part of the TARGET system. Together with the banking sector, the Bundesbank developed this liquidity-saving real-time system for individual payments in euro, combining the features of the Bundesbank's two previous large-value payment systems, the Euro Link System and the liquidity-saving hybrid system Euro Access Frankfurt (Elektronische Abrechnung Frankfurt; EAF). RTGS<sup>plus</sup> went live on 5 November 2001.

Since October 2002, and following a decision of the Governing Council, the European central banks have been working on the next generation

of the TARGET system. Following a thorough consultation period with banks, it became clear that TARGET2 should be based on a common technical platform (a Single Shared Platform; SSP) allowing for a seamless integration of European individual payments. In 2003 the Bundesbank, the Banque de France and the Banca d'Italia decided to join forces and submitted a common proposal to the ESCB to develop and operate the TARGET2 Single Shared Platform. The proposal was accepted by the participating central banks in December 2004. RTGS<sup>plus</sup> will cease its operations, with the introduction of TARGET2 expected to go live on 19 November 2007. However, in TARGET2 there will be many proven service features of RTGS<sup>plus</sup>.

The Bundesbank also offers an electronic procedure intended specifically for the handling of mass payments (credit transfers, cheques and direct debits), the Retail Payment System. The Bundesbank's operational role in this field is solely motivated by public interests. It is not designed to replace private sector activity, but rather to complement it where necessary and correct any market inefficiencies. It gives the traditionally heavily decentralised German banking industry access to euro clearing services, which is neutral in terms of its effect on competition. A specific advantage here is that all German banks can be directly accessed via the RPS, since they hold accounts at the Bundesbank. In addition to domestic payments, it is possible to send or receive cross-border payments within the EU via a link to the EBA STEP2 system. This situation is borne out by the relatively low market shares in domestic interbank clearing (less than 15% of domestic payments), with less than 5% of STEP2 remaining largely stable. As Germany has no domestic ACH, and in line with the mandate set down in the Statute of the ESCB, which allows for an active provision of services to the market, it still appears necessary for the Bundesbank to maintain its range of services in retail payments in order to ensure complementary and open access to European retail payments, particularly for small and medium-sized credit institutions.

In addition to its clearing procedures, RTGS<sup>plus</sup> and the RPS, the Bundesbank also operates the Customer Access Mechanism. In principle, all domestic and foreign account holders can take part in CAM and be accessed by it. CAM was, however, developed especially for the Bundesbank's non-bank customers and provides these with a means of access to RTGS<sup>plus</sup> or TARGET. For an interim period – up to a maximum of four years after the Bundesbank starts participating in the TARGET2 Single Shared Platform (planned for 19 November 2007) – it will also be possible for credit institutions to indirectly participate in RTGS<sup>plus</sup> and TARGET (or TARGET2) via CAM.

Those banks will then be indirect participants of the Bundesbank. CAM is also used for the Bundesbank's correspondent banking services in order to settle incoming and outgoing (cross-border) euro and foreign currency payments. Correspondent payment services can be used by all Bundesbank account holders, including banks. Additionally, the Bundesbank provides the cross-border payment service MASSE, which is used for recurring payments, especially by the government to other countries, e.g. pension payments.

(The principal features of the above-mentioned payment systems of the Bundesbank are described in Section 3.)

#### 1.2.4 SETTLEMENT AND ACCOUNT SERVICES

A prerequisite for using the facilities offered by the Bundesbank for cashless payments is to hold a current account with the Bundesbank.<sup>1</sup> The Bundesbank primarily manages current accounts for banks and public authorities. In accordance with a decision by the Executive Board of the Bundesbank on 31 December 2003, the Bundesbank closed the accounts held by corporations and left this activity exclusively in the hands of the private sector. By way of an exception, cash-in-transit companies can hold accounts, although these are heavily restricted and used mainly for handling and distributing coins. Apart from the minimum reserve balances, current accounts held with the

Bundesbank do not bear interest. In accordance with the cover principle laid down in the BBankG, payment orders are only executed if sufficient cover is available.

In order to avoid any delay in the processing of payments in the course of the day, the current accounts may be overdrawn up to the amount of collateral existing within the framework of the marginal lending facility.

Debit balances at the end of a business day (resulting from intraday credit granted by the Bundesbank) are not admissible and must therefore be settled by paying in the corresponding amounts using overnight facilities.

In addition to the settlement of payments processed through the Bundesbank's payment systems, the accounts are also used for settling balances originating from clearing arrangements outside the Bundesbank, such as "bilateral clearing" (see also Section 1.3). Such settlement transactions are processed via RTGS<sup>plus</sup>.

#### 1.2.5 PRICING POLICY

The pricing policy and the concrete pricing schemes are laid down by the Executive Board of the Bundesbank. Actual pricing is generally based on the cost recovery principle. Furthermore, the Bundesbank supports efficient procedures, for example by charging higher fees for the more complex means of exchanging data than for submissions by data telecommunication. Non-banks are charged a fixed fee per month for account management (for further information on prices, see Section 3). The current accounts of banks are managed free of charge.

#### 1.2.6 GENERAL TERMS AND CONDITIONS

The general provisions of the German Civil Code and the German Commercial Code, as well as the various payment agreements

<sup>1</sup> RTGS<sup>plus</sup> remote participants only require an RTGS<sup>plus</sup> account.

concluded between the banking industry and the Bundesbank, also apply to the Bundesbank with regard to its role in operations. The relationship between the Bundesbank and the user of its services is described in the General Terms and Conditions.

Through its General Terms and Conditions, its processing procedures, its debit and credit conditions and pricing, the central bank controls the extent to which its cashless payment systems are used. In addition, by actively providing services of its own, it may exert a certain influence on the terms and conditions offered by banks.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC INSTITUTIONS

In the Federal Republic of Germany, both banks and the Bundesbank supply the economy and the public with cash and process cashless payments. At the end of 2005 banks held a total of 85.5 million current accounts for non-banks. In addition, credit card companies process payments resulting from credit card transactions via their own networks.

In Germany, there are, overall, some 2,300 credit institutions, with some 40,000 branches (as at end-2006). The predominant type of bank in Germany is the universal bank, which is engaged in several or all types of financial business. In addition, there are specialised institutions, including, for example, mortgage banks, building and loan associations, and the promotional KfW banking group.

Banks in Germany can be divided into three main groups – often referred to as the “three-pillar structure” of the German banking system: commercial banks, public sector savings banks and Landesbanken, and cooperative banks.

The CCC, the joint committee of the central associations of the German banking industry, assumes an important role in German payments. The CCC and the Bundesbank draw up various payment agreements, which are the most

important basis for interbank payments. This also includes the creation of new technical standards and the adoption of already existing standards (e.g. data formats). The agreed procedures and standards are binding for all credit institutions which are members of the associations forming the CCC. Institutions which are not members of a credit sector association must accept the various agreements by specific contractual arrangement before taking part in interbank clearing. The CCC is also leading the implementation and migration efforts for the SEPA in association with the Bundesbank.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The currency used in Germany is the euro, which was introduced on 1 January 1999. At that time it only existed as deposit money or as electronically stored units of value, with banknotes and coins continuing to be denominated in Deutsche Mark (DEM). Following the introduction of the euro in cash form on 1 January 2002, the euro banknotes and coins became legal tender in Germany, but there is no obligation to accept more than 50 coins, or in the case of commemorative coins no more than €100. Moreover, the Bundesbank still exchanges Deutsche Mark for euro.

Euro banknotes are available in seven denominations (€5, €10, €20, €50, €100, €200 and €500) and the coins in eight denominations (1, 2, 5, 10, 20 and 50 cent, and €1 and €2). The German 1, 2 and 5 cent coins have an oak twig on the back, the other cent coins a picture of the Brandenburg Gate in Berlin, and the euro coins the federal eagle (as the German heraldic animal). Furthermore, in 2006 the Ministry of Finance started to issue in Germany a series of €2 commemorative coins with the same technical features as the normal €2 coins. In addition, there are very small quantities of €10 coins, although these are primarily for collectors and therefore rarely used in payment transactions.

Although the share of card-based payments is rising continuously, cash payments still accounted for 63.6% of the value of all retail payments in 2005. However, there is a clear indication that this ratio will decrease further.

## 2.2 NON-CASH PAYMENTS

In Germany, cashless payments are mainly effected by means of credit transfers (42.2% of the total number of cashless payment transactions in 2005) and direct debits (41.9%). The use of card payments (except for e-money cards) is steadily increasing, reaching a total share of around 15%. The use of cheques has decreased (0.7%). E-money payment transactions are still insignificant (less than 1%).

### 2.2.1 CREDIT TRANSFERS

In Germany, credit transfers have traditionally been the predominant form of payment transaction. However, their share of the total volume of payment transactions has decreased slightly in recent years, as more convenient payment instruments, especially direct debits, are being used for certain purposes (e.g. for the collection of identical payments due on a regular basis).

For payments recurring on a regular basis (e.g. rental payments), the bank customer also has the possibility of providing its bank with instructions to set up a standing order; this bank is then responsible for monitoring the timely execution of transfers (e.g. on the last day of the month).

Those customers that instruct their bank to make periodically recurring retail payments (e.g. salaries, wages and social benefits) are requested to submit their orders in electronic form. Increasingly, these payments are now being handled via data telecommunication. In addition, electronic data media (magnetic tape or diskette) are still being used.

In 2005 as many as 6.7 billion credit transfers were processed by the German banking industry.

1 billion of these were submitted to banks by customers via a PC or terminal. As the number of internet-linked accounts increases in Germany and customers accept the use of this modern communication infrastructure for accessing their banks, this number is expected to increase further.

In accordance with the Credit Transfer Agreement between the central associations of the German banking industry and the Bundesbank, every credit transfer is to be processed within the interbank relationship between credit institutions in a fully automated and paperless form. Thus, accepting institutions are obliged to convert credit transfers from a paper-based to a paperless form, i.e. to electronic items to be forwarded, to a very large extent, via data telecommunication or, in some cases, via data media.

### 2.2.2 CHEQUES

In Germany, the cheque has never become as important as in many other countries in the western world. In 2005, in terms of numbers of transactions it accounted for a mere 0.7% of all cashless transactions, and in terms of the value of transactions it accounted for just 1.5%. On account of the increase in more efficient debit card payments, the importance of the cheque was steadily decreasing.

Under the German Cheques Act, the drawee bank may not certify a cheque in such a way as to signify that it undertakes to honour it. The purpose of this prohibition is to prevent cheques from acquiring a function similar to that of banknotes. An exception is made for “certified cheques”, which are drawn on the Bundesbank. Where requested by an issuer with sufficient cover, the Bundesbank will certify such cheques. The liability arising from the certification lapses if the cheque is not presented for payment within eight days of the date on which it was drawn.

With the automation of cashless payment transactions, the fact that a cheque needs to be physically presented (“payable at sight”) has

proved to be one of its key disadvantages. However, in 1985 the CCC and the Bundesbank agreed on a paperless cheque collection procedure (formerly called the BSE Agreement; now part of the Cheque Agreement). The paperless cheque collection procedure (BSE procedure) is used solely for cheques for less than €6,000, owing to the potential legal risk stemming from not physically presenting the cheque (the cheque holder losing its rights under the Cheques Act in the event of non-payment). Under this procedure, the countervalue of truncated cheques is collected in paperless form; the original cheque is not presented. In principle, the first collecting institution is responsible for truncating the cheque data into electronic data records. It should also examine these cheques for compliance with formal and legal requirements. Credit institutions can collect the countervalues of BSE cheques either through the Bundesbank's RPS or by using other channels, such as their own giro networks. Cheques for €6,000 or more – as well as other collection items which do not meet the BSE criteria – are processed in the large-value cheque collection procedure (GSE procedure). The GSE procedure is operated solely by the Bundesbank. The collection and truncation of cheques within the GSE procedure is conducted exclusively at the Bundesbank. It transfers the cheque data into electronic data records and collects the countervalue of the cheques via the RPS on a paperless basis. On account of the large values involved, and by contrast with what happens in the BSE procedure, the original vouchers are also forwarded to the payers' banks or to the central institutions designated by them. The payers' banks are required to verify that original vouchers corresponding to the data transmitted electronically have been received on time and in full.

The CCC and the Bundesbank are planning a new collection procedure for large-value cheques (i.e. for an amount of €6,000 or more), which is intended to be established in September 2007 and will replace the GSE procedure. In this image-based cheque collection procedure (ISE), the paper-based cheque is replaced by an

electronic picture (image) of the cheque, which will be submitted together with the associated payment transaction to the Bundesbank.

The Bundesbank will act as the clearing house within the meaning of Article 31 of the Cheques Act. Under the amendments – effective from 13 October 2006 – to the Regulation concerning clearing houses for cheque payments (Abrechnungsstellenverordnung) of 1953, the submission to the clearing house of an electronic image that completely displays both the front and reverse sides of a cheque is equivalent to the submission of the original cheque. The Bundesbank forwards the image and clearing data record of a correctly submitted cheque to the relevant credit institution, which then checks the image to decide whether the cheque should be honoured. Settlement reversals for cheques that have not been honoured must also be cleared by the Bundesbank, which will also issue a declaration within the meaning of Article 40(3) of the Cheques Act certifying that the cheque has been delivered in due time and has not been paid. The Bundesbank delivers this declaration to the cheque submitter, upon request, enabling it to enforce its rights via a simplified civil procedure.

This modernisation and rationalisation of the cheque collection procedure will significantly reduce the transport and processing costs and also the time required for collection.

### 2.2.3 DIRECT DEBITS

The direct debit, introduced by the German banking industry in 1963, has considerably simplified the collection of periodically payable monetary claims (subscriptions, fees, taxes, etc.). In 2005 41.9% of all cashless payments in Germany were effected by direct debit. Its relative importance compared with other payment instruments is still increasing.

Unlike credit transfers, direct debits are initiated by the payee, which thereby ensures that its claim on the payer is asserted on time. However, this presupposes that the payer preauthorises the payee to collect the payment (collection

authorisation) or, by agreement with the payee, authorises its bank to debit its account in accordance with direct debit requests issued by that particular payee (debit authorisation).

Bank customers with IT systems are expected to submit their direct debits for collection to the bank in electronic form only, i.e. by telecommunication, on magnetic tape or on diskette. Any remaining direct debits which are still paper-based – collection of this kind is fairly expensive for bank customers – are converted into data records by the first collecting institution, e.g. by means of inputting via terminals or scanning systems. In November 1993 the direct debit became the first payment instrument to be fully processed in an electronic way between banks as part of the general conversion obligation introduced on the basis of the Direct Debit Agreement, and since then it has been handled in wholly paperless form for interbank transactions.

#### 2.2.4 CARD PAYMENTS

The use of cards at retailers is increasing steadily. In 2005<sup>2</sup> debit card payments accounted for approximately 27%, credit/delayed debit cards for 5%, and cards with an e-money function for nearly 0% of the total value of non-cash payments.

##### 2.2.4.1 Debit cards

Payment cards in the form of debit cards are usually issued by banks. In general, they can be used for withdrawals at the cash dispensers of the issuing bank or at other banks, as well as for making cashless payments at point-of-sale terminals (in shops, etc.). The number of these cards has grown rapidly over the past decade. Nowadays, the vast majority of bank cards are equipped with a payment functionality.

Recently many card issuers have extended the range of tools available on debit cards. A chip on the card makes offline authorisation of guaranteed card payments possible. In addition, bank cards can be used as prepaid cards (as in the GeldKarte system of the CCC).

As a consequence of the merger between the Europe-wide edc (European debit card) service and the worldwide Maestro system, since the beginning of 1998 many POS terminals and cash dispensers throughout the world have been available to holders of ec cards with the Maestro logo.

No special system exists for the clearing and settlement of debit card transactions with bank cards. The respective payments are processed using the same standards and infrastructures as for direct debits.

##### – Electronic cash

After several years of negotiations, the banking sector drew up an agreement on an interbank system of cashless payment at automatic cashpoints (electronic cash system) in February 1990. This has enabled a uniform POS system on the basis of debit cards. Under the electronic cash system, cardholders can withdraw money at automated teller machines and pay for goods and services by debiting their accounts at the corresponding acceptance points using cards issued by the German banking sector (ec card and bank customer card) and the matching, confidential PIN. Once customers have entered their PIN and confirmed the amount, an authorisation request is directed to the authorisation centre of the issuing bank through the network operator. The authorisation centre checks the credit balance and/or credit line and whether the card is listed in a “blocking file”. If the PIN is correct and the card is not listed in a “blocking file”, the card-issuing bank gives a payment guarantee for the amount requested. A charge is levied on merchants for these transactions.

The terminal networks of the various competing network operators (of which there were 25 at year-end 2005) are connected to the banking industry’s authorisation centres for the electronic cash system. By the end of 2005, following a continuous increase, there were

<sup>2</sup> Figures partly collected by the Eurohandelsinstitut eV, PaySys GmbH and the CCC.



around 570,000 POS terminals, mainly in petrol stations and retail outlets. The banking industry expects a further increase in the use of electronic cash, owing to the high level of security and the guaranteed execution of payments at the point of sale.

A further variant of the electronic cash system is the “electronic cash offline” system, which is based on chipcard technology, allowing for offline authorisation of transactions. Authorisation up to a certain limit laid down individually by the issuing bank is stored on the bank card’s chip. This amount decreases with each payment and, as long as the remaining amount is sufficient, offline authorisation of transactions is possible. In order to pay, the customers must enter their PIN, which is validated on the chip. Online authorisation will only take place if the amount remaining on the chip is no longer sufficient or if a time period of up to 90 days has elapsed since the last online authorisation. The time period is set by the individual card issuer. The fee for offline transactions is the same as for online transactions; however, the retailer saves telecommunication costs through offline handling.

Currently the electronic cash system is preparing for the introduction of the Single Euro Payments Area. In this context, it joined the initiatives of the “Berlin Group” and the “Euro Alliance of Payment Schemes” in order to establish multilateral cooperation between national debit card systems in Europe. Furthermore, since September 2005 the CCC has offered electronic cash for Europe-wide issuing and acquiring.

#### – Electronic direct debit system

The German retail industry has developed a system (without consulting the banking sector) which makes payments by (German debit) bank card possible without online or offline authorisation. This system is known as the electronic direct debit system (ELV). The customer’s signature on the receipt or an additional document authorises the dealer to collect the amount of the purchase by direct

debit. However, the risks of a direct debit being returned on account of a refusal or lack of cover, or possibly because the card has been blocked, are borne solely by the retail outlet. This means that there is no payment guarantee in this system. No extra charges are incurred for the transaction. So far, it has been possible to minimise the risk of payment failures because, in the past, banks issued debit cards only in accordance with strict rules with regard to the customer’s creditworthiness; otherwise, only “pure” bank cards without a payment functionality were issued. This distinction has become less relevant. Owing to the higher risk for the merchants when accepting ELV payments, a further decrease is expected in the future in favour of electronic cash payments. However, the electronic direct debit system was still the most frequently used card-based payment system in Germany in 2005.

#### – Point of sale without payment guarantee

In response to the success of the ELV procedure, the banking sector introduced a system of non-guaranteed electronic payment using the bank card at POS terminals in addition to the electronic cash procedure. The procedure, called POZ, was similar to ELV but had an additional blocking check for amounts of €30.68 or above and a low fee. The POZ system was closed down by the CCC on 31 December 2006.

#### 2.2.4.2 Credit cards

The use of credit cards has increased over the past few years, but not as significantly as the use of debit cards. The number of cards which are issued by banks and licensed by the major card organisations (American Express, Diners Club, MasterCard and Visa) grew from approximately 20.4 million at the end of 2004 to 21.1 million at the end of 2005. At the same time, the number of acceptance points (especially in the retail sector and the hotel business) has increased. In 2005 German cardholders made payments by credit card with a total value of approximately €37.3 billion. But credit cards are still used far less than other

payment instruments (e.g. debit cards) in Germany.

Owing to the commission charges (a deduction from the credit card turnover of the acceptor, which is payable by the latter only) and the procedures for authorisation and processing of these payments, credit cards are not always popular in the retail trade. Thus, their use tends to be restricted to more “upmarket” retail outlets. In addition, the debit cards issued by banks provide retailers with a less expensive payment option.

#### 2.2.4.3 Prepaid cards

Among the products using prepaid multifunction cards in Germany, only the Geldkarte system of the CCC has thus far achieved any significance in terms of use and the number of points of acceptance.

The GeldKarte is a prepaid rechargeable electronic purse scheme operated by the CCC. It has, since its introduction in 1996, shown a slow but steady rise in points of acceptance (172,107 acceptance points in 2005) and in use (4.47 million recharging transactions in 2005). By the end of 2005 there were around 64.5 million cards with the GeldKarte feature, not all of them, however, being actively used. There are cards linked to accounts, where the GeldKarte chip is integrated into a bank card, as well as cards not linked to an account (“white cards”), which have only an electronic purse function. The GeldKarte can be used nationwide. The average value per transaction has decreased to €2.38, which proves that the aim of use for low-value payments is being achieved. The range of acceptance points is diverse, including retailers, public transport ticket machines, parking ticket machines, vending machines and the Deutsche Post (e.g. stamp machines and payment for express parcels), as well as acceptance points on the internet. Significant growth in acceptance points can be expected in the future, since around 500,000 cigarette vending machines are now equipped with GeldKarte reading devices in the context of the legal requirements for protection of minors.

The age-check function is incorporated in the chip in bank cards.

Prepaid payment services are also based on scratch cards (Paysafecard, Deutsche Telekom Micromoney, etc.) and – very recently – also on other existing debit and credit card products. These cards are offered as gift cards or as an electronic form of a formerly paper-based traveller’s cheque, etc. One example is the American Express Traveller Cheque Card, which is issued in Germany by American Express Bank GmbH. The card is available in euro, US dollars and pounds sterling. It can be used for direct payments for purchases and services in stores and restaurants worldwide, or for cash withdrawals at ATMs worldwide. It is rechargeable from all over the world by telephone or via the internet. The issuer provides for compensation in the event of the theft or loss of the card. The issuance of the American Express Traveller Card has been qualified by BaFin as e-money business. Another example is the prepaid Xbox Visa Card issued by Landesbank Berlin AG.

#### 2.2.4.4 Retailer cards

Retailer cards with a payment function, which are issued by some major stores with the aim of increasing customer loyalty, are now competing with traditional credit cards. With the largest issuer in Germany, for example, the use of retailer cards is free of charge. Cardholders can usually take advantage of a payment period of between one and two months or pay in instalments. At present there are around 9.3 million retailer cards with payment functions in circulation. Retailer cards provide the retail trade with exact information on customer and purchasing profiles.

#### 2.2.4.5 Cash dispensers

In Germany, banks offer both their own customers and the customers of other banks the possibility of obtaining cash up to a certain limit from 53,361 cash dispensers nationwide (as at end-2005) using bank or other debit/credit cards in combination with a PIN. For all transactions at cash dispensers, an online

connection to the authorisation centre of the bank concerned is established and a block and limit check is made in order to prevent fraudulent or other inadmissible withdrawals. Settlement of transactions at cash dispensers is effected using the technical standards and infrastructures for direct debits.

### 2.3 INNOVATIVE PAYMENT PROCEDURES

#### *Online banking and internet payments*

The number of internet/PC-linked overnight deposit accounts has grown further. In Germany, around 33 million overnight deposit accounts were internet/PC-linked (i.e. 39% by the end of 2005). In 2005 the number of online credit transfers amounted to 6.6% of all payment transactions (3.5% of the total value of transactions). Given the widespread acceptance of online banking, German credit institutions launched a new internet payment service called GiroPay. Customers are directed from a retailer's website to their own bank's internet banking domain, where, after keying in their account number and a PIN, a remittance slip is completed automatically with all relevant transaction information, so that the customer need simply confirm the transaction to its bank by means of the usual authorisation security measure. The payment is guaranteed to the retailer. However, even though further growth in online banking for e-payments is expected, the use of products for e-payments via the internet is still low in terms of payments as a whole.

#### *Cumulative collection procedures*

Such procedures can be characterised as post-paid payment services and are offered, for example, by the companies ClickandBuy (see below) and Deutsche Telekom (as part of its T-Pay services). In principle, a purchase on the internet via cumulative collection procedures is executed as follows. The user registers online with the payment service provider, selects a method for authorisation (e.g. a password and/or a PIN) and submits a preauthorised mandate to pay regularly (typically monthly) by credit card or direct debit. In order to buy a good or a

service, a customer must click the button of the relevant payment procedure on the retailer's website. Once the customer's user identification has been entered and authorisation has been given, the customer is presented with a page which again names the retailer, type and price of the ordered content or service. The customer must accept the data shown. The accumulated costs are debited from the customer's account on a regular basis and the proceeds are credited to the retailers' accounts.

In addition, telecommunication and mobile phone companies offer the possibility of payment by phone, and the accumulated costs are debited via the monthly phone bill.

#### *PayPal*

In 2004 PayPal started to intensify its business in Germany as an electronic money institution licensed by the British Financial Services Authority. PayPal services include micropayments, as well as other payments, which can be effected from person to person, with the e-mail address as a payment address, both nationwide and cross-border. PayPal can be used for paying for products purchased via ebay internet auctions and for purchases in online shops.

#### *ClickandBuy*

ClickandBuy was founded in Germany in 2000. Originally the company offered post-paid payment services (see paragraph headed "Cumulative collection procedures" above). ClickandBuy obtained an e-money licence from the Financial Services Authority (FSA) in the United Kingdom and has been offering its services as an electronic money institution since the beginning of 2007. The company has, for this reason, moved its headquarters to London. Payments can be effected with the user name as the payment address (usually the e-mail address or mobile phone number) both nationwide and cross-border. ClickandBuy is available all over Europe, in the United States and in Asia.

### **Mobile payments**

Despite the fact that no significant usage exists so far, mobile phones and the increasing performance of communication infrastructures might be an essential tool for improving mobile payment services in the near future. Therefore, some developments are definitely worth mentioning.

At the beginning of 2005 BaFin issued its first licence for issuing e-money to NCS mobile payment Bank GmbH for the Crandy system. Crandy offers accounts for prepaid values stored on a central server. The prepaid accounts can be loaded by credit transfer, direct debit or credit card. The values can be transferred from one Crandy user to another by authorisation by (mobile) telephone.

In addition, there are a number of local initiatives for mobile payments which may have the potential for widespread acceptance. These initiatives include, for example, the payment of parking tickets, and the storage and payment of tickets for public transport.

## **3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS**

### **3.1 GENERAL OVERVIEW OF CLEARING PROCEDURES IN GERMANY**

All banks directly involved in payment transactions are identified either by eight-digit bank sort codes (BLZs) or by their Bank Identifier Codes (SWIFT BIC codes). Branches of banks either have their own BLZ or a BLZ derived from that of their parent institution. The bank sort code is also the current account number with the Bundesbank. Additionally, in the Bundesbank's RTGS<sup>plus</sup> system (see Section 3.2), which is based on SWIFT standards for data formats, banks are addressed solely with BIC codes. Furthermore, BIC codes are being used more and more as an identity code in EU cross-border payments and, with the Single Euro Payments Area due to be implemented in

the near future, these may also be used even in purely domestic contexts.

The clearing structure in Germany is based on a multitude of providers. Interoperability is achieved by a common set of rules agreed by the central associations of the banking industry which is legally binding for all of their members.

#### **3.1.1 COMMERCIAL BANKS' PAYMENT PROCESSING**

The commercial banks (of which there were around 360 at end-2006), particularly the big banks, operate centrally or make use of other service providers (transaction banks). Cross-network payments are exchanged and cleared either bilaterally or via the Bundesbank, where settlement is always based on central bank money. It is also standard practice that urgent payments be made via the Bundesbank's RTGS<sup>plus</sup> system.

#### **3.1.2 GIRO NETWORKS OF SAVINGS AND COOPERATIVE BANKS**

In Germany, savings banks and cooperative banks operate their own giro networks. By contrast with a payment system, a giro network has no system owner and there are no governance arrangements. The giro networks of the savings and credit cooperative banks are based on bilateral agreements between the banks of the respective banking groups using the common data record standards of the German banking industry, which allow full straight-through processing by the intermediary and the receiving banks and additional agreed standards (domestic *loro/nostro* arrangements).

The giro network of the savings banks consists of around 470 savings banks, the Landesbanken and the central institution, the DekaBank (as at end-2006). Each savings bank holds an account with its "regional"<sup>3</sup> Landesbank for the purpose of exchanging payments. However, most savings banks also have direct access to the

3 With a few exceptions, there is one central institution for each federal state in Germany.

Bundesbank's payment systems via a clearing account of their own. In general, the payments are processed in special computer centres in the savings bank sector. Debit positions resulting from the exchange of payments within the giro network are transferred to the central institutions, which then credit or debit the settlement accounts of each savings bank. The Landesbanken hold settlement accounts for each other for the purpose of payment transfers, i.e. commercial bank money is used to settle with savings banks on a regional basis, and with Landesbanken on a national level. Cross-network payments are exchanged and cleared either bilaterally or via the Bundesbank, where settlement is always based on central bank money. Urgent payments are, in most cases, made via the Bundesbank's RTGS<sup>plus</sup> system outside the giro network of the savings banks.

The credit cooperatives sector also operates a giro network. This includes (as at end-2006) around 1,250 credit cooperative banks in Germany, one regional institution, the WGZ-Bank (Westdeutsche Genossenschafts-Zentralbank eG), and the central institution DZ Bank (Deutsche Zentral-Genossenschaftsbank). The technical processing of payments is carried out using a similar approach to that of the savings banks.

### 3.1.3 BILATERAL INTERBANK CLEARING

For the interbank clearing of retail payments outside entities' own networks, there is an additional procedure in Germany, known as bilateral interbank clearing ("garage clearing"). It consists of the bilateral exchange of files or data media between the main clearing institutions of the giro networks containing data for banks which can be reached via the bilateral partner. Historically, these bilateral exchanges of data (e.g. via tapes) were executed on the premises of the branches of the Bundesbank and/or in a "garage/car park" of a commercial bank. Nowadays, payment transaction data are almost exclusively exchanged via data telecommunication channels. The Bundesbank's RTGS<sup>plus</sup> system is used only to effect gross settlement of the

bilaterally exchanged data (transfer of the total of the data files or carriers exchanged bilaterally) in central bank money. The decision to operate in this bilateral manner is based on purely commercial grounds.

### 3.1.4 PAYMENT SYSTEMS OF THE BUNDESBANK

The Bundesbank runs its own payment systems (RTGS<sup>plus</sup> and the RPS), which are neutral in terms of competition and available to banks. In addition, the Bundesbank offers its customers the use of CAM.

### 3.1.5 OUTSOURCING AND ALTERNATIVES

German credit institutions are aiming at further enhancing the efficiency and speed of payments. In order to achieve this, as well as reducing costs, banks are restructuring internal processes or deciding to outsource part of their payment processing. The outsourcing of a banking business to another enterprise is effected pursuant to Section 25a(2) of the Banking Act. This has led to the establishment of a number of "transaction banks" in Germany, which provide all or part of the payment transaction value chain (e.g. conversion of vouchers into electronic data) for their clients in order to achieve economies of scale. Such strategies can be seen at the level of the commercial banks, the savings banks and the credit cooperatives. Another strategy, which is used as an alternative to outsourcing, is off-shoring and/or near-shoring, whereby the provision of services remains within the banking group, but is effected in other, low-cost countries.

## 3.2 THE RTGS SYSTEM – RTGS<sup>PLUS</sup>

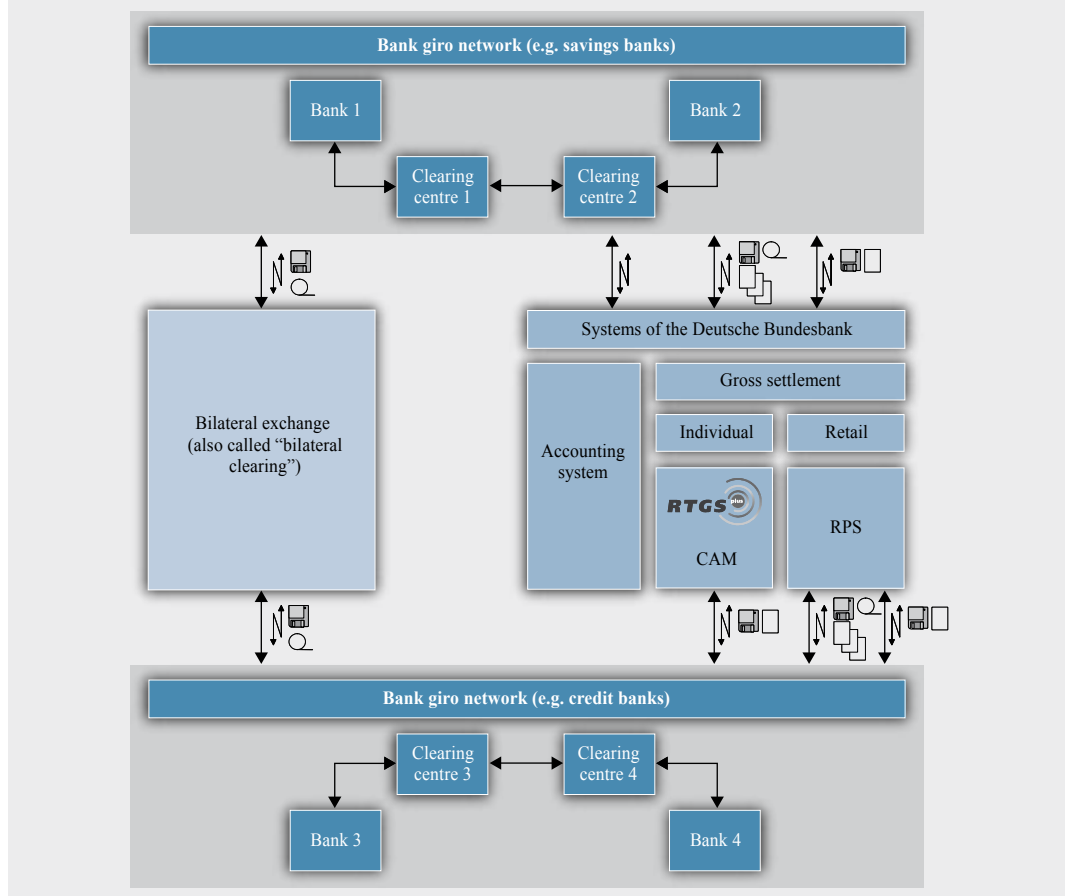
### 3.2.1 OPERATING RULES

The technical concept behind RTGS<sup>plus</sup>, which was drawn up in close cooperation with the banking industry, has the following main features:

- *European orientation through open access and use of domestic liquidity*

The system is open to all credit institutions and investment firms which are domiciled

Chart 1 Interbank funds transfers in Germany



in the EEA. Moreover, RTGS<sup>plus</sup> keeps its own intraday accounts for settling payments. There are various flexible options for the provision of liquidity to and the withdrawal of liquidity from these RTGS<sup>plus</sup> accounts (“liquidity bridge”).

- *Gross system with liquidity-saving elements*

The integration of liquidity-saving elements into the gross settlement procedure of an RTGS system makes it possible for the customer to individually organise payment processing from the point of view of throughput and liquidity savings.

- *Payment system with extensive options for controlling liquidity*

Every participant in RTGS<sup>plus</sup> can precisely control the use of the liquidity it makes available in accordance with its needs.

- *Online information and interactive control*

RTGS<sup>plus</sup> offers comprehensive real-time information and makes it possible to change all control parameters using modern internet technology with its Information and Control System (ICS).

- *Use of SWIFT standards and services*

RTGS<sup>plus</sup> uses internationally established SWIFT standards for data formats and payment exchange. Moreover, interactive SWIFTNet services are used for online information and control.



A comprehensive description is available in the password-protected area of the homepage [www.rtgsplus.de](http://www.rtgsplus.de). This RTGS<sup>plus</sup> documentation contains a user guide, operating instructions, specifications and information on system authorisation and customer tests. The documentation is part of the general terms and conditions of RTGS<sup>plus</sup>.

### 3.2.2 PARTICIPATION IN THE SYSTEM

In order to ensure that access to RTGS<sup>plus</sup> is as open as possible, the Bundesbank has dispensed with size-dependent criteria for participation in the system. It is possible to address around 8,600 credit institutions as direct or indirect participants (including branches of participants).

Only credit institutions and investment firms in the EEA may participate directly in RTGS<sup>plus</sup>. In February 2007 there were 195 direct participants. Banka Slovenije (since October 2004) and 17 Slovenian credit institutions (since July 2005) also use remote access to participate in RTGS<sup>plus</sup> and are, therefore, accessible by German credit institutions and European banks via TARGET. They have chosen this solution to gain easy and cost-effective TARGET access without having to set up their own RTGS system in euro. For the same purpose, the Central Bank of Cyprus has chosen this solution in order to connect the Cypriot banking community to TARGET. Consequently, the Central Bank of Cyprus and 15 Cypriot credit institutions have been participating in RTGS<sup>plus</sup> since December 2006. With the introduction of the euro in Slovenia on 1 January 2007, another four participants joined RTGS<sup>plus</sup>. Furthermore, the Central Bank of Malta became a direct participant in February 2007. Banks may also participate indirectly in RTGS<sup>plus</sup>. In this scenario, the exchange of messages and settlement are carried out via the selected direct RTGS<sup>plus</sup> participant, which is either a credit institution or the Bundesbank. With regard to the latter, banks can use the Customer Access Mechanism for a transitional period (up to a maximum of four years after the launch of

TARGET2) in order to participate indirectly via the Bundesbank in TARGET and TARGET2.

### 3.2.3 TYPES OF TRANSACTION HANDLED

RTGS<sup>plus</sup> is a system for credit transfers in euro. On the one hand, banks make use of RTGS<sup>plus</sup> for interbank operations, such as money market transactions and liquidity management operations. On the other hand, owing to its speed and its liquidity efficiency, RTGS<sup>plus</sup> is also widely used for urgent customer payments (with a share of 60% in terms of volume).

Domestic and EU cross-border instructions may be submitted, as required, in the form of either express or limit payments. In addition, RTGS<sup>plus</sup> offers the possibility of submitting orders as timed payments.

#### – Express payments

For express payments, the participant uses its full RTGS<sup>plus</sup> liquidity. The express mode is, therefore, especially suitable for priority payments, e.g. time-critical and settlement payments.

#### – Limit payments

Alternatively, the participant may use the system to control the outward flow of liquidity by defining limits and submitting orders as limit payments. Such payments are only executed if the current credit balance in RTGS<sup>plus</sup> is sufficient and the maximum amount of liquidity the sender is willing to use for limit payments has not been exceeded.

#### – TARGET payments

RTGS<sup>plus</sup> is the German component of the TARGET system. With the introduction of RTGS<sup>plus</sup> as the German TARGET component, the quality of service in TARGET has further improved and thus contributes to a more efficient liquidity flow, owing to the fact that, for example, TARGET payments in Germany may also be submitted as limit payments.

#### – Timed payments

Participants can tag time-critical payments (“till” payments) with a due time. Nevertheless,

the RTGS<sup>plus</sup> participant is still responsible for the punctual execution of the payment. However, the ICS enables simple and continuous monitoring via targeted access to these instructions and provides a special warning feature. In RTGS<sup>plus</sup> it is also possible to set up “from” payments. The participant defines the earliest processing time of the payment.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The communication infrastructure of RTGS<sup>plus</sup> is geared to SWIFT services. The system accommodates the demand for secure, modern and international access routes by exclusively following SWIFT standards. This allows for a rapid connection to RTGS<sup>plus</sup> and the realisation of considerable synergy effects owing to the fact that SWIFT interfaces are already employed in many banks. Foreign banks can thus easily participate in RTGS<sup>plus</sup>.

Payments are processed using the FIN Y-Copy service, specifically developed by SWIFT for real-time gross settlement systems. RTGS<sup>plus</sup> customers can also use the innovative and highly secure SWIFTNet InterAct/FileAct services, which offer a high level of availability and ensure a comprehensive supply of information and active control in real time. They may use a fully automated exchange of information between their back offices based on XML message types via SWIFTNet InterAct or have dialogue-oriented access to all relevant RTGS<sup>plus</sup> data via SWIFTNet InterAct Browse. Customers which do not wish to use SWIFTNet InterAct/FileAct services may communicate through a worldwide virtual private network (VPN).

RTGS<sup>plus</sup> is compatible with straight-through processing (STP) in many respects. It uses SWIFT data record formats and thus provides the basis for fully automated payment processing. RTGS<sup>plus</sup> supports STP features such as the SWIFT message type MT 103+ and ensures high standards with regard to the quality of data. At the end of the day participants receive message types MT 940 and 950, which enables them to automatically balance the

payments cleared on that particular day against the payments entered in their internal processing systems.

RTGS<sup>plus</sup> offers a high degree of availability and reliability by using the latest technology and a high degree of backup provision.

### 3.2.5 TRANSACTION PROCESSING

RTGS<sup>plus</sup> not only processes all incoming payments quickly and securely, but also handles them in such a way as to enhance liquidity. Thus, the system combines the elements of gross, net and hybrid systems, preventing credit and liquidity risks.

#### *– RTGS<sup>plus</sup>: a system with its own liquidity holding*

RTGS<sup>plus</sup> holds its own intraday liquidity. Therefore, direct participants transfer liquidity from their home account, which may be held at a central bank or a credit institution within the euro area, to their RTGS<sup>plus</sup> account in the morning. At the end of the day the remaining liquidity is transferred back to their specified account. During the day liquidity can easily be transferred between RTGS<sup>plus</sup> and the respective home account. This structure allows, for example, the smooth participation of foreign participants by means of remote access. Liquidity transfers may be initiated by means of the ICS and are effected via the Bundesbank or via TARGET. Participants that hold an account at the Bundesbank may also set up a standing order via the ICS for the liquidity injection in the morning.

#### *– Limits: systemic control of the use of liquidity*

Limits are the most important means of managing liquidity in RTGS<sup>plus</sup>. By preventing unilateral losses of liquidity, sender limits ensure that – beyond a certain threshold – RTGS<sup>plus</sup> participants can only receive final payments if they are ready to submit payments themselves (the “payment-versus-payment philosophy”). Moreover, experience shows that sender limits encourage early submission of payments and help to synchronise payment

flows. The participants have flexible options for controlling their liquidity. If they do not require any control at all, they can dispense with the use of limits entirely. The next level of control is to define a total limit. This restricts the use of liquidity available for limit payments as a whole, and reserves the liquidity in excess of this level for express payments. Additionally, fine control of liquidity can be achieved by defining bilateral sender limits, which are participant-related, and multilateral sender limits for all other participants.

**– Online information and interactive control via the interactive Information and Control System**

Nowadays the flow of information is assuming central importance. For this reason, RTGS<sup>plus</sup> provides the ICS. By means of the dynamic, rapid and comprehensive provision of information online, participants can monitor their liquidity position at all times and are able to plan it in a long-term manner. All essential RTGS<sup>plus</sup> information can be called up in real time, in a transaction-oriented and interactive way. The participants can call up their liquidity position in RTGS<sup>plus</sup> and, if available, in their Bundesbank home account. They have targeted access both to detailed information on any RTGS<sup>plus</sup> payment and to accumulated payment information, e.g. incoming and outgoing payment queues. The system also provides messages on current status and general information. Participants can control their payment processing in accordance with their needs and circumstances at any given time. All essential action parameters can be changed interactively, as long as the payment is not final, as in the case of limits. These parameters include the position of payments in the queues, the processing type (express or limit payments), the setting of execution times (“from” and “till” payments) or the revocation of payments. The ICS is also used for liquidity transfers from the RTGS<sup>plus</sup> account to the home account and, if the participant has a home account with the Bundesbank, from the home account to the RTGS<sup>plus</sup> account. Moreover, the ICS is equipped

with a backup functionality. This permits participants to send important liquidity transfers to other RTGS<sup>plus</sup> participants even if the sender is not able to send its payments owing to technical problems.

### 3.2.6 SETTLEMENT PROCEDURES

RTGS<sup>plus</sup> has the same advantages as other RTGS systems, i.e. the efficient and immediate processing of payments and the immediate finality of credit bookings in central bank money, as well as comprehensive value-added benefits (e.g. in order to save liquidity).

The liquidity-saving processing of RTGS<sup>plus</sup> is achieved by means of various coordinated mechanisms. These consist mainly of three measures: immediate real-time settlement, but with consideration of mutual cover dependencies for both express and limit payments; event-oriented optimisation of the express queue; and ongoing resolution of all queues through sophisticated, differentiated algorithms for identifying offsetting transactions. This allows for efficient payment processing with beneficial liquidity-saving effects. The algorithms lead to minimised queues and improved throughput, as well as accelerated settlement with early finality, owing to the efficient use of the available liquidity. Consequently, participants are able to optimise their collateral deposits.

### 3.2.7 CREDIT AND LIQUIDITY RISK

RTGS<sup>plus</sup> overcomes the barrier between gross, hybrid and net settlement systems and integrates the advantages of both environments into one system. RTGS<sup>plus</sup> accounts, which are run on a credit basis only, are the basis for any transaction processed in the system. All payments are characterised by secure processing in central bank money with early finality, which is typical of real-time gross systems. Payment instructions are handled immediately and checked for cover. If there is sufficient liquidity available, the payment is settled and central bank money transferred simultaneously and immediately. If not, the payment order will be placed in a queue. The credit booking to the RTGS<sup>plus</sup>

account of the recipient is final and irrevocable immediately, and the funds are available for disposal without any further restrictions. For this reason, RTGS<sup>plus</sup> does not create any settlement, credit or liquidity risk. The use of offsetting payments as additional cover in RTGS<sup>plus</sup> facilitates payment processing and reduces liquidity needs. Moreover, smooth and fair behaviour among the participants is supported by the liquidity management features provided in RTGS<sup>plus</sup>.

### 3.2.8 PRICING

Only transaction fees are charged to RTGS<sup>plus</sup> participants, i.e. there are no one-off or regular fixed fees. The transaction fees are on a descending scale, with all participants passing through each stage. The price model takes the interests of both large and small banks into account. Participants with a small number of transactions profit from a favourable, transparent transaction price that is valid for all participants, whereas banks with larger volumes benefit from a scaled discount system:

Submission per month	Transaction fee per item
For the first 4,000 orders	€0.24
For the following 16,000 orders	€0.22
For the following 40,000 orders	€0.205
For the following 40,000 orders	€0.19
For the remaining payments	€0.17

### 3.2.9 STATISTICS

On an average working day in 2006 RTGS<sup>plus</sup> processed around 128,500 domestic payments and more than 20,000 cross-border TARGET payments; the average turnover was around €600 billion.

### 3.2.10 NEW DEVELOPMENTS

Once the production business of TARGET2 has commenced RTGS<sup>plus</sup> will be abandoned. With regard to TARGET2, full details are provided in Section 3.1.2 of the euro area chapter.

## 3.3 THE CUSTOMER ACCESS MECHANISM

### 3.3.1 GENERAL OVERVIEW

The Customer Access Mechanism is an internal payment application of the Bundesbank for its customer business. It is the standard access procedure for those customers which wish to make individual domestic and cross-border payments in euro within the EU but are not direct participants in the RTGS<sup>plus</sup>/TARGET clearing system. CAM also serves the Bundesbank's correspondent business in order to settle incoming and outgoing (cross-border) euro and foreign currency payments.

At a later date, it is intended to integrate access for non-banks to the RPS and STEP2 payment systems into CAM.

In addition to the general provisions applied to payment services offered by the Bundesbank, the "Special terms and conditions of the Deutsche Bundesbank concerning the electronic transfer of instructions, data and customer information" (EADK, currently available in German only) and the "Specifications for the electronic payment operations of the Deutsche Bundesbank" are also applicable to the electronic submission of orders.

### 3.3.2 PARTICIPANTS

As a general rule, all account holders may participate in CAM, i.e. both domestic and foreign banks, as well as non-banks (mainly public authorities).

CAM is used primarily by the Bundesbank (for its own business), but also by its non-bank customers, as a means of access to RTGS<sup>plus</sup> and TARGET. For a transitional period – i.e. up to a maximum of four years after the Bundesbank starts participating in the TARGET2 Single Shared Platform (expected to be on 19 November 2007) – it will also be possible for banks to participate indirectly in RTGS<sup>plus</sup> and TARGET (be it TARGET or TARGET2) via CAM.

As regards the service of processing incoming and outgoing (cross-border) euro and foreign

currency payments in the correspondent banking business, this service is available to all customers, including banks (i.e. there is no limitation in terms of time).

### 3.3.3 TYPES OF TRANSACTION HANDLED

CAM handles credit transfers designated by the participants as “TARGET payments (in euro)”, “domestic euro payments”, “cross-border euro payments” or “payments in foreign currencies”. As long as all the requirements have been met (including sufficient cover), euro payments and foreign currency transfers (in the same currency) are executed on the same day or – if provided – on a predetermined business day in the future, which may be up to nine business days (in terms of payment processing) after the submission date (the provision of a predetermined business day is possible only in the case of submission via SWIFT). Foreign currency payments to be debited in euro are executed in accordance with standard market practices, i.e. for submission by electronic access procedure (via data telecommunication), processing is started on the submission day and the payment order is executed two business days later. If the submission occurs via SWIFT, processing is started – if possible – two business days prior to the execution day set out in the payment orders, but not before the submission day.

### 3.3.4 TRANSACTION PROCESSING ENVIRONMENT

CAM is operated in the Bundesbank’s computer centre in Frankfurt am Main with a high degree of backup provision.

### 3.3.5 OPERATION OF THE TRANSFER SYSTEM

In principle, the data are transferred via data telecommunication. Moreover, it is possible to use vouchers. Paper-based orders must be submitted to the Bundesbank branches responsible for the participant’s account. Orders via telecommunication are forwarded directly to CAM using either the proprietary procedure for electronic access or SWIFT. In CAM, payments can be processed in the domestic DTA format (slightly adapted to the requirements of electronic access), in SWIFT format or in the EDIFACT record format (FINPAY). Detailed

information on record formats can be obtained from the “Specifications for the electronic payment operations of the Deutsche Bundesbank”.

The payments that have been executed are delivered to the receiving participants via telecommunication or to the Bundesbank branches, which then issue paper-based transfer documents. Furthermore, a receiving bank is notified separately if it so wishes or if the ordering party requests notification. Such notification, however, is waived only if the payment is delivered via telecommunication.

### 3.3.5 SETTLEMENT PROCEDURE

If the sender’s account has sufficient cover, the debit and credit entries in the appropriate accounting system of the Bundesbank are made immediately on the execution day. The internal processing of the payments delivered is effected on the basis of individual transactions in accordance with the gross principle with immediate finality.

### 3.3.6 CREDIT AND LIQUIDITY RISK

Since each order is only executed if there is sufficient cover, settlement failures or unwinding are ruled out. Thus, the recipient bank is not exposed to credit or liquidity risk and can make the received funds available to the final beneficiary unconditionally.

### 3.3.7 PRICING

If an order is submitted by telecommunication (standard service), a transaction fee of €1.75 per transaction is charged for handling a payment in euro within/to Germany or to a country within the EEA, irrespective of whether the payment is completely processed within CAM or transferred to RTGS<sup>plus</sup> or TARGET. A payment in euro to a country outside the EEA, or a payment in foreign currency settled in the same foreign currency is charged at ¼%, with a minimum of €2.50 and a maximum of €100 per transaction. A payment in foreign currency settled in euro is charged at ½%, with a minimum of €5 and a maximum of €100 per transaction.

Additional fees are charged for additional services, e.g. €2 for paper-based orders.

### 3.4 THE RETAIL PAYMENT SYSTEM

#### 3.4.1 GENERAL OVERVIEW

The electronic Retail Payment System, owned and operated by the Bundesbank, is used both for the routing of credit transfers and for the collection of cheques and direct debits in euro. The RPS complements the giro networks and the bilateral interbank clearing arrangements within the German banking industry with a cost-effective and reliable system ensuring nationwide coverage. In addition, cross-border euro transfers to other EEA countries can be effected by means of a connection to the STEP2 system of the Euro Banking Association.

In general, retail payments without a need for priority treatment are submitted in files to the RPS and are batch-processed “overnight”. Currently the RPS processes, on average, approximately 9 million transactions per day. The majority of these transactions (55%) consist of collection items (cheques and direct debits), leaving a share of 45% for credit transfers. Peak volumes amount to nearly 25 million transactions a day.

Cheque collection in the RPS follows either the BSE or the GSE procedure, or, following its introduction, the ISE procedure.

The processing time for RPS payments is, in general, one working day (a shorter time is possible, depending on the time of submission). The booking is effected on the Bundesbank accounts of the submitter and the receiving participant on the same day (i.e. in general on the business day following submission); the RPS is, therefore, float-free.

#### 3.4.2 PARTICIPANTS

Banks that hold an account with the Bundesbank and meet the technical requirements can participate in the RPS on a neutral and non-discriminatory basis. Currently more than 200 banks in Germany actively use the RPS. For

STEP2 payments, banks have the possibility of registering as indirect STEP2 participants at the EBA via the Bundesbank. In this scenario, they receive all payments in STEP2 via the Bundesbank. The Bundesbank also acts as an entry point in the STEP2 system, i.e. payments for non-registered participants in STEP2 will be sent to the Bundesbank if selected by the sending bank in the EBA as the default.

In addition other Bundesbank account holders (e.g. public authorities) may use the RPS. From a legal point of view, these are customers of the Bundesbank and participate via the Bundesbank.

The various interbank agreements between the central associations of the banking industry and the Bundesbank provide the technical and organisational framework for RPS processing. The content of these agreements relates both to technical requirements (e.g. data formats) and to certain conversion requirements.

For non-banks, both the “Special terms of the Deutsche Bundesbank for the Retail Payment System” (RPS conditions) and the “Special terms and conditions of the Deutsche Bundesbank concerning electronic order transfer of instructions, data and customer information” (EADK conditions) are applicable with regard to clearing in the RPS procedure.

#### 3.4.3 TYPES OF TRANSACTION HANDLED

In the domestic context, the RPS is used to process paperless credit transfers and direct debits of any value. In addition to domestic credit transfers, cross-border credit transfers which comply with Regulation (EC) No 2560/2001 on cross-border payments in euro,<sup>4</sup> can also be executed in a cost-effective, rapid and efficient manner. For this purpose, a link has been established to the STEP2 system of the Euro Banking Association. With regard to

<sup>4</sup> Credit transfers of up to €50,000 to other EU/EEA countries provided that a valid IBAN number for the beneficiary’s account and a valid BIC for the beneficiary’s bank are provided. In addition to the Regulation, the only charging arrangement allowed is “share”.



domestic cheque collection items, both BSE and GSE (as of September 2007, ISE) collection items can be processed via the RPS.

#### 3.4.4 PROCESSING ENVIRONMENT

From a technical point of view, the RPS is based on the communication procedures usually employed for the exchange of retail payments between credit institutions in Germany. As a matter of principle, orders must be presented by banks in paperless form. Cheques for amounts of €6,000 or above (“GSE cheques”) are an exception to this rule. Payments can be submitted and received via data telecommunication and via electronic data media (magnetic tapes or diskettes being accepted only from non-banks, mainly public authorities). In 2006 more than 95% of transactions were submitted via data telecommunication. Since January 2006 it has been possible to access the RPS system via SWIFTNet FileAct. This service can also be used by banks from EEA countries as remote participants.

Paper-based orders by non-banks, e.g. public authorities, are converted into electronic data by the branches and the Central Office of the Bundesbank. A special data input/output system connected to the RPS is used for this purpose.

Payments are processed in the central RPS application.

Payments submitted via data telecommunication or SWIFTNet FileAct are received by the relevant gateway system and transferred directly to the RPS. Data media submitted to the branches by non-banks are sent by courier to a service centre for execution on the next business day. GSE cheques are also submitted to the branches and are sent physically overnight to a service centre, which performs the truncation into electronic data records and the submission to the RPS application on the next business day (with direct submission to the service centre being possible in some cases).

Since February 2005 the RPS has had four processing windows. Payment orders submitted between 7 a.m. and 8 p.m. CET (domestic credit transfers, as well as STEP2 credit transfers) and between 9 a.m. and 9 p.m. CET (direct debits and payments arising from the paperless cheque collection procedure) are processed in the first window. Credit transfers are executed on a gross cumulative basis, with sufficient cover being a vital condition for execution. The equivalent values of credit transfers are blocked in the submitter’s Bundesbank account on the day of submission from 7 p.m. CET, taking into account the free marginal lending facility. The blocking has no effect on the minimum reserve and is transformed into account debit entries on the next business day. The value of cheques and direct debits is credited on the business day following submission (“subject to collection”) and is also settled on a gross cumulative basis. All payment orders are, in principle, booked on the Bundesbank accounts on the business day following the day of submission. This ensures float-free settlement. Payments are sent out on the same evening immediately after processing at around 9.30 p.m. CET via data telecommunication or handed over to the Bundesbank branch for submission. The Bundesbank forwards cross-border credit transfers to the EBA’s STEP2 system by 10 p.m. CET at the latest.

The first two morning processing windows are for the settlement of payment orders submitted exclusively by data telecommunication between 8 p.m. and 7 a.m. CET (credit transfers) and between 9 p.m. and 9 a.m. CET (direct debits and payments arising from the paperless cheque collection procedure). The payments are booked and delivered directly on the morning of the processing day. During the third morning processing window, delivery and booking of cross-border transfers received from EBA/STEP2 and the data delivery and booking of GSE items and BSE cheques (only paper-based submission by public authorities) submitted on the previous day take place. The physical GSE cheques are sent by the service centre – depending on individual preference – to the

relevant Bundesbank branch or directly to the respective credit institution. The originals can also be collected directly from the service centre.

Banks have the option of joining a service centre or clearing institution and having their submissions and deliveries effected by this institution; in such cases the payments are settled via the clearing institution.

#### **3.4.5 CREDIT AND LIQUIDITY RISK**

Since each (single or collective) payment is booked on a gross basis and revocation of the transaction is no longer possible once automatic processing has been launched, there is no credit risk – and generally no liquidity risk – for the recipient bank. The latter can make the incoming funds available to the final beneficiary without reservation.

For cheques and direct debits, the items are credited – in accordance with standard practice in the German banking industry – “subject to collection”.

#### **3.4.6 PRICING**

The following prices are charged (as at 1 April 2007). Data records from banks, submitted via data telecommunication, are subject to a transaction fee of €0.0025 per data record. Paper-based cheques submitted are billed at €0.60 per item; the sorting and delivery of GSE cheques is subject to a fee of €0.30 per item. The pricing of cheque items will be adjusted with the introduction of the new image-based cheque collection procedure in September 2007.

For orders transmitted to the Bundesbank to be executed in STEP2, the submitting bank must pay a transaction fee depending on how many payments are submitted per month. The fee stands at €0.25 per payment for up to 20,000 transactions, €0.20 per payment from 20,001 to 50,000 transactions and €0.12 per payment for more than 50,000 transactions per month. The above-mentioned fees apply to all payments

submitted by the participant. In other words, a participant that submits 25,000 payments every month must pay a fee of €0.20 for each payment. In addition to the transaction fee, the Bundesbank passes on the fees charged by the EBA for the “registration” of indirect participants. No separate fee is levied for payments which the Bundesbank receives from STEP2 and forwards to either the indirect STEP2 participants or the receiving banks as part of its “entry point” function. On the delivery side, fees are only charged for additional services in the RPS if the receiver does not accept the payment via data telecommunication.

For non-banks that use the Bundesbank’s RPS the following fees apply. Data records of domestic (RPS) and cross-border (STEP2) payments submitted by electronic data media or by data telecommunication are subject to a transaction fee of €0.08, €0.05 or €0.03 per data record, depending on whether those participants submit up to 100,000, up to 250,000, or more than 250,000 payments per month. As is the case for banks, these fees apply to all payments submitted by the participant. Additionally, data media are subject to a fee of €7.50 per item, and paper-based credit transfer orders are billed at €0.30 per item.

#### **3.4.7 FUTURE TRENDS**

Plans are under way, in close cooperation with the German banking industry, to further modernise communication procedures by introducing further broadly accepted data telecommunication standards. In addition, it has been decided to further develop the RPS procedure into a SEPA-compliant system, which will offer the processing of SEPA credit transfers and direct debits as of 1 January 2008. From this point in time, the RPS will also apply – in parallel with the DTA – the new SEPA data formats based on XML structures. Furthermore, an image-based cheque processing service will be introduced in the RPS and will be available by September 2007.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 LEGAL FOUNDATIONS OF STOCK EXCHANGE TRADING

The legal principles governing stock exchange trading are not embodied in a single act dealing with all issues relating to the stock exchange system. The Stock Exchange Act (Börsengesetz) and the German Securities Trading Act (Wertpapierhandelsgesetz), the scope of application of which extends to stock exchange trading, provide the public law framework. Moreover, stock exchange trading is based on a further system of legal provisions of varying legal quality. These are based to some extent on public law, e.g. the Stock Exchange Rules (Börsenordnungen), and to some extent on private law, e.g. the terms and conditions of trading on German stock exchanges (Bedingungen für die Geschäfte an der Börse). These provisions closely reflect the typical legal features of the stock exchange structure: on the one hand, there are stock exchange organs and supervisory bodies with sovereign powers, and, on the other hand, there are trading activities based on private and public law between licensed stock exchange participants, which include the intermediary services performed by brokers.

#### 4.1.2 FINANCIAL INTERMEDIARIES ENGAGED IN THE VARIOUS SECURITIES MARKETS

Permission to trade officially on the stock exchange is granted only to traders (usually representatives of investment banks), lead brokers (which calculate the prices of securities allocated to them) and brokers (which facilitate transactions between banks). Third parties not licensed to trade on the stock exchange must utilise the services of banks, since only the latter are allowed to act as brokers for third parties, while intermediary services between banks are performed by lead brokers (Skontoführer) and brokers (Freimakler).

#### 4.1.3 TRADING SEGMENTS

The stock exchanges are divided into several segments, which, in turn, are subdivided into various categories in accordance with the rules and requirements governing the securities being traded. The primary distinction is drawn between official and unofficial trading. The listing requirements and subsequent obligations in relation to securities vary according to the market or trading segment concerned. In Germany, shares are traded on the FWB Frankfurter Wertpapierbörse (Frankfurt Stock Exchange) and the regional exchanges of Berlin-Bremen, Düsseldorf, Hamburg-Hanover, Munich and Stuttgart.

##### 4.1.3.1 Official trading

The German stock exchanges' official trading segment, the Official Market (Amtlicher Markt), is where the lion's share of turnover in shares and bonds is generated. Exchange prices are determined by lead brokers.

There is a right to execute orders placed on an unlimited basis to the extent that turnover actually results.

##### 4.1.3.2 Unofficial trading

Unofficial trading in Germany consists of the Regulated Market (Geregelter Markt) and the Open Market (Regulated Unofficial Market – Freiverkehr).

##### 4.1.3.2.1 The Regulated Market

The Official and Regulated Markets are EU regulated markets, i.e. they are markets governed by public law (e.g. by the German Securities Trading Act). The Regulated Market is designed to give companies which do not meet the requirements for official trading the opportunity to raise equity capital by listing their shares publicly on a market regulated by law under the supervision of a stock exchange. In addition, fixed interest rate securities are also traded on the Regulated Market. The market is characterised by simplified listing requirements and disclosure rules. Prices are fixed by brokers commissioned and supervised

by the stock exchange's management in accordance with the rules for official listing.

#### **4.1.3.2.2 The Open Market (Regulated Unofficial Market)**

The Open Market (Regulated Unofficial Market) is a segment under private law; it is regulated by Deutsche Börse AG. It provides for trading in securities (shares, bonds and warrants) which are listed neither in the official trading segment nor on the Regulated Market. It also serves as a market segment for regional and foreign securities. The listing requirements are limited; there is no obligation to publish a prospectus, but a brief exposé must be prepared for every public offer for sale and approved by BaFin in accordance with the Securities Prospectus Act (Wertpapierprospektgesetz). Securities are admitted for listing by the Regulated Unofficial Market Committee. The brokers are responsible for trading and for the listings. In the process, prices are freely negotiated. There is no automatic entitlement regarding the execution of orders, even if placed on an unlimited basis. The fact that companies are not obliged to provide comprehensive information may be seen as a disadvantage for investors in the Open Market.

#### **4.1.4 XETRA**

XETRA is Deutsche Börse AG's electronic trading system for spot trading and coexists with the trading floor. XETRA is an order-driven trading system with automatic transaction-matching which consolidates all orders in a central order book. The order book is open to inspection by all XETRA participants. This is intended to enable all participants to react to market changes in a more focused manner.

#### **4.1.5 EUREX**

Eurex was conceived jointly by Deutsche Börse AG and the Swiss Stock Exchange in December 1996 and established in 1998 as the result of a merger between the Deutsche Terminbörse (German Futures and Options Exchange) and SOFFEX. It is thus the common futures market of the German and Swiss stock

exchanges. Eurex is an independent, fully electronic market for forward exchange transactions, i.e. both futures contracts and listed options are traded. Eurex offers a cross-border market featuring a uniform range of standardised and innovative products on the basis of a harmonised body of rules and regulations. A distinction is drawn between participants which transact for their own account and customer business and those which also perform market-maker functions. The task of market-makers is to provide binding bid and offer prices for the base instruments which they manage. The Futures Exchange operates in four phases of daily trading. In the pretrading period orders and quotes can be submitted and information retrieved. On the basis of the orders and quotes entered up to this point, a preliminary opening price is displayed in the opening period, which is subject to revision as further orders and quotes are received. A final opening price is determined within the scope of the subsequent compensation process. Trading continues throughout the trading period. Stock market participants can enter orders and quotes in the system for around two hours after the trading period ends, i.e. in the post-trading period.

#### **4.1.6 EUROPEAN ENERGY EXCHANGE**

The European Energy Exchange represents the first integrated spot and futures market for electricity in central Europe. The spot market was launched on 8 August 2000, and the futures market followed in the fourth quarter of 2000. The European Energy Exchange unites the technology of the XETRA and Eurex stock exchange trading systems. Its aim is to enable European market participants to trade freely in energy.

#### **4.1.7 THE ELECTRONIC BOND AND REPO MARKET**

Eurex Bonds was launched in October 2000 as a multilateral trading facility (MTF)<sup>5</sup> for off-

<sup>5</sup> The Markets in Financial Instruments Directive (MiFID) defines a multilateral trading facility as a multilateral system operated by an investment firm or a market operator which brings together multiple third party buying and selling interests in financial instruments – in the system and in accordance with non-discretionary rules – in a way that results in a contract.

exchange, wholesale trading in fixed income bonds and is a joint initiative of Eurex Frankfurt AG and 11 leading financial institutions. The organisation is a private law joint venture with the purpose of establishing and operating an electronic platform for bond and basis trading in debt issues. 33 participants are currently connected, including the German Finance Agency and the Bundesbank. The Eurex Bonds trading platform offers a direct link between spot and futures markets for electronic basis trading. All Eurex Bonds trades are cleared by Eurex Clearing AG, which serves as a central counterparty. The German Finance Agency performs market management operations through the Eurex Bonds platform. Liquidity in the bond and basis trading markets is provided by market-makers. All fixed income bonds of the Federal Republic of Germany (German government bonds, German federal medium-term bonds and federal Treasury notes) and of the Treuhandanstalt (privatisation agency), fixed income bonds of the KfW Kreditanstalt für Wiederaufbau, the European Investment Bank and the federal states (Länder), jumbo bonds of German issuers, and underlying instruments for all bonds of the Federal Republic of Germany and of the Treuhandanstalt deliverable in Eurex (Schatz, Bobl and Bund futures) can be traded.

Eurex Repo was founded in February 2001 as a subsidiary of Eurex Frankfurt AG and started its operations in July 2001. Eurex Clearing AG acts as the central counterparty for buyers and sellers. Transactions concluded on both Eurex Bonds and Eurex Repo can be settled in Clearstream, Euroclear or SegmaInterSettle. Eurex Repo currently offers German government bonds, KfW/federal states' and German Pfandbriefe with ratings of AA or better as collateral over its European platform. Eurex Repo is the market leader in the German Pfandbrief segment. The Eurex product portfolio has been enlarged with a solution for the secured money market combined with the collateral management system Xemac of Clearstream (Euro General Collateral GC Pooling). With this GC Pooling segment, Eurex Repo offers

cash-driven, international trading of a General Collateral basket. GC Pooling is a fully integrated trading, settlement and collateral process and thus offers the possibility in the repo market of conducting secured cash management with delivery and payment. Eurex Repo enables increased efficiency in the trading and collateral management of secured money market transactions and helps repo market participants to optimise their use of collateral.

#### 4.1.8 STOCK EXCHANGE SUPERVISORY ORGANS

The supervision and monitoring of stock exchanges in Germany is the responsibility of BaFin, the exchange supervisory authorities of those German states with registered stock exchanges and the trading surveillance offices (Handelsüberwachungsstellen) of the stock exchanges in question. Moreover, anyone wishing to provide commercial securities services requires a licence from BaFin.

The supervision of the stock exchange by BaFin serves to protect stock market participants and investors. Its tasks are as follows:

- surveillance to prevent and detect illegal insider activities;
- monitoring of ad hoc disclosure requirements of listed companies;
- monitoring of disclosure requirements in the event of a change in the voting rights held in officially listed companies;
- monitoring of compliance with rules of conduct relating to customer transactions and the depositing of prospectuses;
- monitoring of directors' dealings; and
- international cooperation among stock exchange regulatory and supervisory authorities, and all matters relating to the supervision of securities trading.

As a rule, the states' exchange supervisory authorities are represented by a commissioner

of state. These commissioners of state are responsible for legal and market supervision, such as:

- supervision of the price formation processes;
- investigation of violations of exchange regulations; and
- development of preventive measures and supervision of the trading of the exchange bodies.

Its extended tasks encompass:

- supervision of the market participants admitted to exchange trading; and
- contributions to legislation and exchange policy.

The trading surveillance office is an independent organ of the stock exchange and exercises direct market supervision. It systematically and meticulously records all data relating to trading and processing on the stock exchange and checks them for conspicuous features and irregularities. In this manner, it controls pricing and price fixing. It must also carry out all necessary investigations. The trading surveillance office cooperates, as a matter of principle, with other exchanges and may transfer data on trades to the management and trading surveillance offices of other exchanges if this is required in order for the other offices to fulfil their tasks. Where the trading surveillance office identifies irregularities, it informs the management of the stock exchange and the exchange supervisory authority, which may then initiate proceedings against the market participants concerned prior to any action on the part of the sanctions committee of the exchange.

## 4.2 CLEARING

Eurex Clearing AG, as a licensed credit institution, is a subsidiary of the Eurex

exchange. Eurex Clearing AG serves as the central counterparty for derivatives traded in Eurex and transactions concluded on Eurex Bonds and Eurex Repo, as well as for equities traded via XETRA and on the Frankfurt trading floor. When a transaction is concluded, Eurex Clearing AG acts as the clearing house and central counterparty for both contractual parties, which are members of the central counterparty clearing house. As a central counterparty, the clearing house immediately interposes itself as a buyer to every seller and as a seller to every buyer (open offer). Counterparty risk is significantly reduced, since each clearing member has the clearing house as its counterparty in place of other market participants, which, in most cases, might not have the same credit quality as Eurex Clearing AG. By consolidating exposures under Eurex Clearing AG as the central counterparty, members benefit from the correlation between risk positions and portfolio diversification. A risk-based margining system based on value-at-risk methodologies creates benefits for members, while maintaining the clearing house's financial soundness at the levels targeted by the risk-carrying community.

Eurex Clearing AG introduced its remote clearing system on 1 August 2000. This enables participants from any country in the EU or Switzerland not only to participate directly in trading, but also to handle clearing and settlement themselves. Furthermore, US clearing members may clear their positions deriving from derivative transactions concluded on Eurex via the Clearing Corporation, owing to the clearing link that exists between Eurex Clearing AG and the Clearing Corporation.

## 4.3 SETTLEMENT

### 4.3.1 LEGAL FOUNDATIONS FOR CUSTODY OPERATIONS BY BANKS

The Securities Custody Act of 1937 constitutes the legal basis for the safe custody and administration of securities by banks. The Securities Custody Act serves to protect owners



holding their securities in custody with banks. In particular, it ensures that purchasers acquire, under civil law, (co-)ownership rights in their securities as soon as possible and do not lose these proprietary rights if the depository bank encounters financial difficulties.

Banks may, in their own names, give custody of their customers' securities to other (third-party) custodians. This does not affect the rights of the depositor, since the third-party custodian must assume that the securities are the property of the customers of the submitting bank (principle of non-property presumption). In particular, securities of customers may not be used to cover the liabilities of the banks involved, unless special permission is granted by the customer. Institutions involved in custodian operations are, by definition, banks pursuant to the Banking Act (KWG) and are thus within the ambit of banking supervision. In particular, this sector of business is subject to a special audit each year.

The Securities Custody Act (a special piece of legislation for the banking sector) deals with the custody of securities by banks, as a rule in the form of collective safe custody (usually represented by a global certificate), or – at the request of the owner or if only individual certificates are issued – in the form of individual safe custody. Owing to rationalisation and cost factors and the general benefits of the book-entry system, only collective custody of immobilised or dematerialised securities is of significance today. Full dematerialisation of securities is, by law, restricted to government issues. Legally dematerialised securities are treated as if they were securities in collective custody: the legal rules (on the transfer of in rem entitlements) applicable to securities in collective safe custody equally apply to government securities.

In line with the possibilities laid down by the Securities Custody Act for the custody of securities, the securities acquired by an investor are, as a rule, kept and administered, via a bank (intermediate custodian), at Clearstream

Banking AG Frankfurt (third-party custody with Clearstream acting as a central securities depository – “Wertpapiersammelbank”). For dematerialised securities, Clearstream is entered as the fiduciary in the collective debt register administered by the federal (or state) debt administration authority, thus becoming – by way of legal fiction – the central securities depository for government paper; otherwise, registration is effected in the individual debt register, which is also administered by the federal (or state) debt administration authority.

#### 4.3.2 GERMANY'S CENTRAL SECURITIES DEPOSITORY

##### 4.3.2.1 Legal and organisational framework

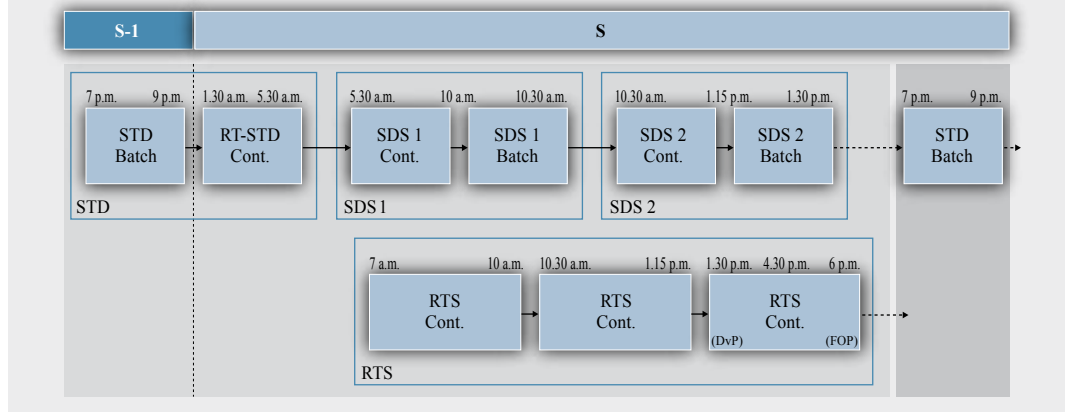
Clearstream Banking AG Frankfurt is Germany's central securities depository. Clearstream Banking AG Frankfurt is a wholly owned subsidiary of Clearstream International SA, which is a subsidiary of Deutsche Börse AG.

Customers of Clearstream can be domestic or foreign credit and financial service institutions, or specialised public institutions. In addition, foreign CSDs and clearing organisations or supranational financial organisations can open securities and cash accounts with Clearstream. A requirement for admission as a customer of Clearstream is, among other things, that the respective institution be subject to both the provisions governing statutory auditing of securities deposits under the KWG and the laws of the country of origin in question, or voluntarily allow its safe custody accounts to be audited. Almost all German banks engaged in securities trading and/or in custody operations hold accounts with Clearstream. Institutions that are not direct customers of Clearstream can make use of the services offered by Clearstream indirectly via Clearstream customers.

Unlike many other national CSDs, Clearstream has a long history of establishing (direct and indirect) links with other countries with regard to the custody of foreign securities, even prior to the launch of European Economic and Monetary Union. Clearstream is one of the



Chart 2



founding members of the European Central Securities Depositories Association.

Ownership of securities is transferred by book entry in the case of instruments in collective custody, or by physical delivery of the certificates in question. In the case of collective custody, the standard form of custody in Germany, the investor receives co-ownership – on the basis of the nominal amount or the number of securities it holds – measured in fractions of the collective inventory of a class of security. Ownership is transferred once the booking entry has been completed in the case of FOP settlement or at the same time as the cash settlement procedure between Clearstream and the Bundesbank is completed. The settlement system of Clearstream is, as a “designated securities settlement system”, protected by the Settlement Finality Directive (SFD).

#### 4.3.2.2 The settlement procedures of Clearstream Banking AG Frankfurt

All business transacted on stock exchanges, whether on the trading floor or via XETRA, the electronic trading system of Deutsche Börse AG, is automatically forwarded for processing (partly via the interposition of Eurex Clearing AG as the central counterparty) to Clearstream Banking AG Frankfurt via the appropriate IT facilities. In accordance with the stock exchange rules and regulations, all transactions must be settled on the second stock

exchange day following the day of trading (T+2). For OTC transactions, settlement is possible up to T+40. There are no different settlement cycles for the different types of securities.

Securities transfers against payment are generally effected only on the basis of DvP, i.e. simultaneous delivery of securities and payment of the relevant cash equivalent. A precondition for DvP settlement, therefore, is that Clearstream customers have both adequate securities cover in their custody accounts and cash cover in their Bundesbank accounts. By adhering to the DvP principle, the settlement or principal risk is avoided, i.e. neither of the two trading partners need unilaterally render payment or delivery in advance. If customers do not have an adequate number of securities in their custody accounts, they can utilise Clearstream’s automatic securities lending facility. Cash requirements can be covered through the usual central bank facilities, since the amounts are settled via central bank accounts.

Clearstream enables the processing of securities transactions nearly 18 hours per day. Overnight processing comprises one batch (standard settlement; STD) and one real-time settlement cycle (RT-STD). Daytime processing consists of two continuous processing cycles combined with a closing batch processing cycle (same-

day settlement; SDS 1, SDS 2). In parallel, there is a real-time settlement cycle (RTS). Basically, stock exchange trades, custody payments and the bulk of OTC trades are settled within batch runs. Alternatively, OTC transactions can be settled trade by trade on a real-time basis.

#### *Clearstream business day*

Clearstream Banking AG settles transactions between customers by means of automated, simultaneous book-entry debits and credits in the respective securities and cash accounts. These book entries are transferred after completion of a processing run that considers customers' instructions transaction by transaction in an iterative process in order to determine which of the transactions can settle, in such a way as to optimise settlement while remaining within predefined limits. The batches are intended to maximise by means of iteration the number of settlement orders effected on the basis of the securities (and cash prefunded for nightly settlement) available in the participants' accounts. Account is taken of the priorities stipulated by customers when placing their orders with regard to the date of settlement (older, outstanding orders being processed first) and the scope of trading (large transfers are dealt with before smaller ones). In the case of simultaneous securities transfers within the scope of batches, the relevant mirror cash accounts of the party liable for payment and the beneficiary are debited and credited respectively.

At the end of a batch each participant will have a single net cash position, since all incoming and outgoing payments are netted against one another. Cash settlement in central bank money is carried out via the Bundesbank's Electronic Securities Settlement (ESS) (Elektronische Wertpapierverrechnung).

#### **4.3.2.2.1 Night-time processing**

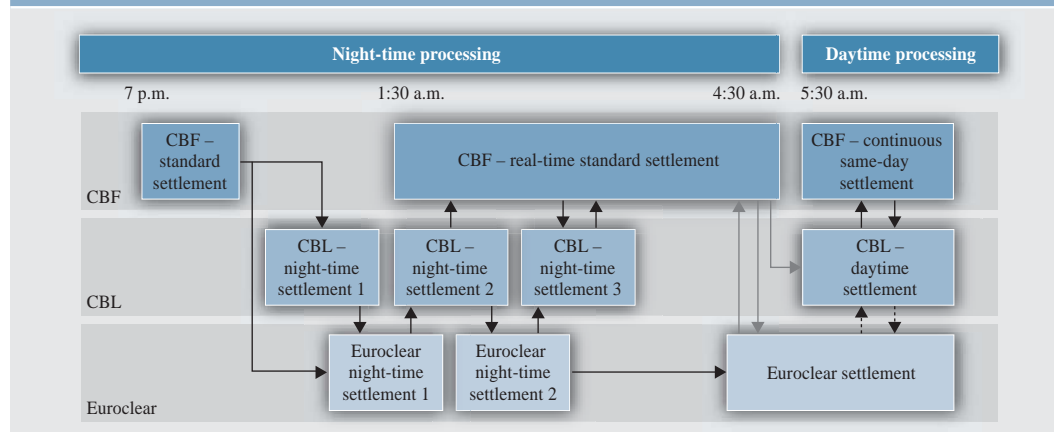
Clearstream's night-time processing (DvP Model 1), as the most important settlement cycle in respect of the processed volume and value of transactions encompassing two

settlement windows, is characterised by prefunding, i.e. customers must provide funds for settlement in advance of the night-time cycles. This settlement model will gradually be extended to all batch cycles. The unwinding risk is fully eliminated, because customers reserve the cash amount for night-time settlement on SD-1 (the day prior to the settlement date) on their accounts with the Bundesbank, which then blocks the reserved amounts accordingly and thus guarantees the blocked liquidity.

Clearstream therefore informs its customers of the estimated liquidity required for the night-time settlement. The customers then instruct the Bundesbank, via Clearstream, to guarantee a certain amount of money in favour of Clearstream participants for settlement purposes. The Bundesbank checks to what extent participants' requests are covered by their central bank account liquidity (available account balances and intraday credit facilities), blocks these amounts and subsequently releases an irrevocable guarantee. Clearstream then books this guaranteed amount on internal cash memorandum accounts and starts its DvP standard settlement process at around 7 p.m. CET on SD-1. If the amount guaranteed by the Bundesbank is not sufficient for the settlement of all transactions designated by the respective customer for the night-time batch, the related transactions are kept pending and will be forwarded to the next settlement cycle. The cash memorandum accounts are solely used for internal processing and do not represent liabilities of Clearstream. Irrevocable and enforceable finality within the meaning of the SFD is achieved following completion of the STD settlement cycle at around 9 p.m. CET.

Also on the basis of this prefunded liquidity, a real-time settlement process (RT-STD) takes place from 1.30 a.m. to 5.30 a.m. CET on SD (the settlement date), with immediate finality occurring during the processing cycle. The introduction of this second night-time cycle has increased settlement efficiency and the settlement turnover rate for OTC instructions

Chart 3 Interaction with ICSDs



and enables additional data exchange with Clearstream Banking SA Luxembourg and Euroclear Bank night-time processing, as well as contributing to the interoperability of European SSSs. Securities transfers involving more than one system can be coordinated more effectively. Experience has shown processing to shift from the daytime cycles to night-time settlement, thus achieving earlier finality for the vast majority of transactions before the opening of TARGET.

The cash leg resulting from transactions processed during the night is booked in the morning of the settlement day. Clearstream informs the Bundesbank of the used liquidity. Following this, the Bundesbank books the debits and credits, while simultaneously releasing the previously blocked amounts. With the booking on the Bundesbank's accounts, all securities transactions processed during the night become legally fulfilled.

#### 4.3.2.2.2 Daytime processing

Daytime batch processing starts at 5.30 a.m. CET on SD with continuous processing on the securities side and finishes at 10.30 a.m. CET with another batch cycle (SDS 1). Cash clearing occurs between approximately 10.30 a.m. and 11.30 a.m. CET. Securities processed after the end of the first SDS batch at around 10.30 a.m. CET are continuously processed until the beginning of the second SDS batch (SDS 2),

which ends with cash offsetting at around 2.30 p.m. CET. Basically, securities are processed on a gross basis on condition that the subsequent cash settlement, on a net basis, is successful (provisional booking). Clearstream aggregates and nets the equivalent of all claims and liabilities of customers. Participants that have a negative net cash position at the end of SDS 1 must arrange for the necessary cover to be made available in their Bundesbank accounts on time. This cover can consist of a credit balance or of available overdraft facilities. At around 11 a.m. CET, on the instructions of Clearstream, the Bundesbank debits the accounts of all banks with a net debit position. Once all debit balances are covered, Clearstream disburses the amount in question to those participants that have a positive net position. As a result of this disbursement, the processed securities transactions acquire final status and are simultaneously legally fulfilled. If a participant with a debit position is unable to provide the necessary cover, the worst case scenario is that the settlement for that particular processing cycle would need to be unwound. However, this has never been necessary in the past, as Clearstream has additional means in place to contain this risk. The second daytime cycle operates along the same principles. Since the extension to daytime settlement of the prefunding settlement model currently implemented for night-time settlement is envisaged in the context

of TARGET2, the unwinding risk will then be completely eliminated.

#### 4.3.2.2.3 Real-time settlement

In addition to standard and same-day settlement, Clearstream provides a real-time settlement service, FOP and DvP, between 7 a.m. and 4.30 p.m. CET. After 4.30 p.m. CET FOP and DvP settlement for specific transactions (Euro GC Pooling) is still possible until 6 p.m. and 5.30 p.m. CET respectively. Clearstream therefore matches securities transfer orders, blocks the securities to be sold in its own system and – electronically – directly instructs the Bundesbank to debit the cash account of the buyer. Once the debit entry has been made, ownership of the blocked instruments passes to the buyer, and the seller receives the cash amount in question. RTS trades become final and legally fulfilled on a trade-by-trade basis after the posting of securities with the subsequent cash settlement via the Bundesbank's EES.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE DEUTSCHE BUNDESBANK

Like any commercial bank, the Bundesbank uses Clearstream Banking AG Frankfurt for its own and its customers' business, i.e. for securities trading activities for the public sector, foreign central banks and international organisations, as well as for associated services in the area of custody accounts.

In addition, Clearstream Banking AG Frankfurt plays an important role in implementing the monetary policy of the ECB and granting intraday credit for payment system purposes. These credit operations are to be collateralised in accordance with Article 18 of the Statute of the ESCB. To this end, the Bundesbank's counterparties hold a pledge pool with the Bundesbank, which consists of four parts:

1. securities in custody accounts held with the Bundesbank and pledged to the latter

(known as “operational safe custody accounts” (Dispositionsdepots));

2. securities in custody accounts of counterparties held with Clearstream and pledged to the Bundesbank (pledge accounts in the collateral management system “Xemac” of Clearstream Banking AG Frankfurt);
3. securities delivered via correspondent bank accounts with other central banks and pledged to the Bundesbank (CCBM; see also Section 4.4 of the euro area chapter); and
4. credit claims assigned to the Bundesbank.

In the case of the Bundesbank's operational safe custody accounts, Clearstream assumes the role of delivering agent, and securities are delivered “free of payment” from the custody account of a Bundesbank counterparty with Clearstream to the Bundesbank's custody account with Clearstream for credit to the respective counterparty's custody account with the Bundesbank. The Bundesbank assumes the daily valuation of collateral inventories in accordance with the uniform Eurosystem criteria. Clearstream has no further tasks; the Bundesbank is largely independent of Clearstream in the day-to-day operation of the operational safe custody accounts and does not require an online interface for every single monetary policy operation or every single intraday credit operation for payment transactions in the course of the business day.

Clearstream does assume additional functions within the scope of its “Xemac” pledge account system. In “Xemac”, lump sums determined on a long-term basis are pledged. These are reported to the Bundesbank as an overall total. In addition, any changes to these lump sum amounts, as well as details on the underlying pledged securities, are reported to the Bundesbank. By means of the direct links between Clearstream and other (I)CSDs, French, Spanish, Dutch, Austrian and Finnish

government bonds, as well as euro bonds, can be pledged via “Xemac” in favour of the Bundesbank. Clearstream assumes the daily valuation of the securities in accordance with the Eurosystem criteria and automatically arranges for subsequent deliveries of securities, which may be necessary in the event that the lump sum amount is undermined owing to price fluctuations.

On the whole, “Xemac” is less complicated, in technical terms, than the collateralisation of loans via repo transactions, which requires online connections for each individual intraday credit to be granted. Furthermore, the system has the advantage that the entire liquidity of Bundesbank counterparties can be concentrated in one location and used for other purposes, e.g. for providing Eurex with collateral.



# IRELAND

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## LIST OF ABBREVIATIONS

CAS	Central Accounting System
CBFSAI	Central Bank and Financial Services Authority of Ireland
CFTC	Commodity Futures Trading Commission
DIS	Daily Interbank Settlement
HFA	Housing Finance Agency
IBF	Irish Banking Federation
IEX	Irish Enterprise Exchange
IPCC	Irish Paper Clearing Company Limited
IPSO	Irish Payment Services Organisation
IRECC	Irish Retail Electronic Payments Clearing Company Limited
IRISCo	Irish Real-time Interbank Settlement Company Limited
ISE	Irish Stock Exchange
ISEQ	Irish Stock Exchange Index
NTMA	National Treasury Management Agency
NYBOT	New York Board of Trade
NYCC	New York Clearing Corporation
POSB	Post Office Savings Bank
SITF	SEPA Implementation Task Force

## INTRODUCTION

The Central Bank and Financial Services Authority of Ireland (CBFSAI) is the body with overall responsibility for the regulation and oversight of payment and securities settlement systems in Ireland.

In Ireland, large-value payments and interbank settlements are effected using a fully automated RTGS system known as IRIS, an acronym derived from the name of the company which owns the system, Irish Real-time Interbank Settlement Company Limited (IRISCo). The RTGS system, which commenced operations in March 1997, is managed and operated by the CBFSAI and is interlinked with the TARGET system. There is no large-value netting system in Ireland.

With regard to retail payments, both cash and cheques are still widely used in Ireland, although the use of credit and debit cards for making small-value payments has continued to increase in popularity. Credit transfers play only a relatively minor role in payment systems in Ireland.

Two separately incorporated clearing companies, Irish Paper Clearing Company Limited (IPCC) and Irish Retail Electronic Payments Clearing Company Limited (IRECC), are responsible for retail payment clearing functions; the former company handles all paper payment instruments, while the latter is responsible for bulk electronic payments. The systems settle on a multilateral netting basis, with end-of-day settlement payments being effected via the RTGS system. The current clearing structure became operational in 1999.

The Irish Stock Exchange (ISE) is the only stock exchange established in Ireland. The ISE operates two distinct markets on which securities are traded. The first of these, the Official List, is the main market for securities such as equities, government bonds, exchange-traded funds, covered warrants, investment funds and specialist debt instruments. The

Official List also constitutes the “regulated market” of the ISE as provided in Article 16 of the Investment Services Directive. The second market, the Irish Enterprise Exchange (IEX), is specifically designed for small to mid-sized companies. Most company securities are traded on ISE Xetra, the electronic trading system of the ISE. These securities are cleared by Eurex Clearing AG and are settled in the UK CREST system. Irish government bonds are traded on EuroMTS, the electronic trading system for market-makers in Irish government bonds, and are settled through Euroclear. In addition to the ISE, FINEX Europe, a financial futures exchange, also operates in Ireland.

The CBFSAI continues to operate the register for Irish government bonds, as well as for a small number of bonds issued by the European Investment Bank, the Housing Finance Agency (HFA) and Ulysses Securitisation plc (the last two bodies being state-sponsored special-purpose financing vehicles). The majority of accounts on the register represent the holdings of private investors, with the holdings of institutional investors largely represented in an omnibus account in the name of Euroclear Nominees. Transactions in Irish government bonds are settled in Euroclear, the settlement system operated by Euroclear Bank.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The following is a list of the principal institutions engaged in the supervision, regulation and oversight of the financial infrastructure in Ireland, and an outline of their respective areas of responsibility.

#### (a) Central Bank and Financial Services Authority of Ireland

- supervision of banks, building societies, insurance undertakings, credit unions, stock exchanges, investment and insurance intermediaries, collective investment schemes and their fund service providers, mortgage intermediaries, futures and options exchanges, money brokers, money lenders, bureaux de change, money transmission service providers, e-money providers and certain other financial institutions;
- competent authority for the purposes of the EC Prospectus and Market Abuse Directives;
- regulation of retail bank charges;
- regulation and oversight of payment and securities settlement systems;
- provision of settlement account facilities, including management and operation of the RTGS system;
- registrar for Irish government bonds and certain other securities; and
- issue of euro banknotes and coins in Ireland.

#### (b) Irish Stock Exchange

- monitoring compliance by members with the membership rules of the ISE;
- monitoring compliance by issuers with the listing rules of the ISE; and

- detection and investigation of insider dealing in relation to the IEX.

#### (c) National Treasury Management Agency (NTMA)

- issue and management of Irish government debt.

#### (d) Irish Payment Services Organisation (IPSO)

- representative body of the Irish payments industry.

#### (e) Irish Banking Federation (IBF)

- representative body of the banking and financial services sector in Ireland.

#### (f) Minister for Finance

- control of the Post Office Savings Bank (POSB).

#### (g) Financial Services Ombudsman

- investigation of complaints from consumers in relation to their dealings with all financial service providers.

#### (h) Investor Compensation Company Limited (ICCL)

- compensation of retail clients in the event of an investment firm being unable, for reasons directly related to its financial circumstances, to meet its obligations arising from claims by clients.

The principal relevant legislation is listed below:

- Central Bank Acts, 1942-98;
- Central Bank and Financial Services Authority of Ireland Acts, 2003 and 2004;
- Companies Acts, 1963-2000;
- Bills of Exchange Act, 1882;
- Cheques Act, 1959;
- Stock Transfer Act, 1963;

- Building Societies Act, 1989;
- Trustee Savings Banks Act, 1989;
- National Treasury Management Act, 1990;
- ACC Bank Act, 1992;
- ICC Bank Act, 1992;
- Criminal Justice Act, 1994;
- Stock Exchange Act, 1995;
- Investment Intermediaries Act, 1995;
- Companies Act, 1990 (Uncertificated Securities) Regulations, 1996;
- Credit Union Act, 1997;
- Investor Compensation Act, 1998;
- European Communities (Deposit Guarantee Schemes) Regulations, 1995;
- European Communities (Finality of Settlement in Payment and Securities Settlement Systems) Regulations, 1998;
- Finance Act, 2000;
- Insurance Act, 2000;
- Pensions (amendment) Act, 2002;
- Criminal Justice (Terrorist Offences) Act, 2005;
- Investment Funds, Companies and Miscellaneous Provisions Act, 2005;
- Market Abuse (Directive 2003/6/EC) Regulations, 2005;
- Prospectus (Directive 2003/71/EC) Regulations, 2005; and
- relevant case law in general.

## 1.2 THE ROLE OF THE CENTRAL BANK AND FINANCIAL SERVICES AUTHORITY OF IRELAND

### 1.2.1 GENERAL

With effect from 1 May 2003, the Central Bank of Ireland, which came into being in 1943, was restructured and renamed the Central Bank and Financial Services Authority of Ireland when the Irish Financial Services Regulatory Authority (the Financial Regulator) was established as the single regulator for all financial services in Ireland. The restructured entity was formally established on 1 May 2003. The CBFSAI carries out all of the activities formerly carried out by the Central Bank of Ireland, together with additional regulatory and consumer protection functions for the financial services sector. The CBFSAI has two component entities:

- the Central Bank, which has responsibility for monetary policy functions, financial stability, economic analysis, currency and payment systems, investment of foreign and domestic assets and the provision of central services; and
- the Irish Financial Services Regulatory Authority (Financial Regulator), an autonomous entity within the CBFSAI with responsibility for financial sector regulation and consumer protection.

The CBFSAI is a member of the Eurosystem, which has as its primary objective the maintenance of price stability in the euro area. In addition to its Eurosystem role, the CBFSAI continues to have a number of domestic responsibilities; these include the supervision of most of the country's financial institutions and the regulation of payment and securities settlement systems.

### 1.2.2 OVERSIGHT OF PAYMENT SYSTEMS

Overall responsibility for the regulation and oversight of payment and securities settlement systems lies with the CBFSAI. The principal relevant legislation is contained in the Central

Bank Act, 1997, which came into force on 9 April 1997. The CBFSAI also has statutory responsibilities under the Central Bank Act, 1971 for ensuring access to cheque clearing facilities by non-clearing credit institutions and other entities. The European Communities (Finality of Settlement in Payment and Securities Settlement Systems) Regulations, 1998, which took effect from 4 January 1999, transposed the Settlement Finality Directive into Irish law.

The Central Bank Act, 1997, provides for the CBFSAI to authorise all payment and securities settlement systems operating in the state and to approve their rules. The CBFSAI may impose conditions on approval, revoke approval and issue directions to payment and securities settlement systems or their members. The actions of the CBFSAI in this regard must be in the interest both of the proper and orderly regulation of the systems concerned, and of competition between such systems. The general objective of the regulatory regime is to ensure that payment and securities settlement systems in Ireland are effective, efficient and open, and that the systems themselves do not cause, or add to, instability in the operation of financial markets. Payment and securities settlement systems are subject to ongoing monitoring by the CBFSAI, particularly with regard to the acceptability of their rules and of any proposed rule changes.

### 1.2.3 OPERATIONAL ROLE

The Central Bank Acts of 1942 and 1971 provide the CBFSAI with powers to operate accounts for credit institutions and for the Irish government. In 1980 the Central Bank of Ireland established the Daily Interbank Settlement (DIS) system and through this medium provided settlement account services to credit institutions. The DIS system was replaced in March 1997 by the RTGS system, known as IRIS (see Section 3.2).

The CBFSAI operates the register for Irish government bonds and for a small number of bonds issued by the European Investment Bank,

the Housing Finance Agency and Ulysses Securitisation plc.<sup>1</sup> Holdings in all of these bonds are recorded in accounts on a stock register system maintained by the CBFSAI. The majority of accounts on the register represent the holdings of private investors, with the holdings of institutional investors largely represented in an omnibus account in the name of Euroclear Nominees. The CBFSAI carries out all of the standard registrar functions, such as making dividend and redemption payments and maintaining up-to-date bondholder records. Dividend and redemption payments are made either by electronic funds transfer directly to a specified bank account, or by cheque posted to the bondholder. Payments to institutional investors who are Euroclear members are made directly to Euroclear, which in turn makes payment to the bondholders on the due date.

### 1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS

In addition to its payment systems role, the CBFSAI also has overall responsibility for the regulation and oversight of securities settlement systems, the principal relevant legislation being contained in the Central Bank Act, 1997.

The Central Bank Act, 1997, provides for the CBFSAI to authorise all securities settlement systems operating in the state and to approve their rules. The CBFSAI may impose conditions on approval, revoke approval and issue directions to securities settlement systems or their members. The actions of the CBFSAI in this regard must be in the interest both of the proper and orderly regulation of the systems concerned, and of competition between such systems. The general objective of the regulatory regime is to ensure that securities settlement systems in Ireland are effective, efficient and

<sup>1</sup> The HFA is a company promoted by the Minister for the Environment under the Housing Finance Agency Act, 1981. The HFA has issued bonds on the Irish Stock Exchange and loaned the proceeds to housing authorities. Ulysses Securitisation plc was incorporated following the passing of the Securitisation (Proceeds of Certain Mortgages) Act, 1995. It provides for the securitisation of certain mortgage debts owed to local authorities. The proceeds of securitisation are used by the Irish government to meet extraordinary expenditure items.

open, and that the systems themselves do not cause, or add to, instability in the operation of financial markets. Securities settlement systems are subject to ongoing monitoring by the CBFSAI, particularly with regard to the acceptability of their rules and of any proposed rule changes.

### 1.2.5 BANKING SUPERVISION

The Financial Regulator was formally established on 1 May 2003 as the single regulator for all financial services in Ireland. The Financial Regulator is a constituent part of the CBFSAI and is responsible for the supervision of a wide range of financial institutions.

The Financial Regulator is also responsible for the provision of consumer information and for consumer protection. In this regard, its mandate is both to protect consumers by helping them to make informed financial decisions in a safe and fair market, and to provide a regulatory framework that fosters safe and sound financial institutions.

The supervisory responsibilities of the Financial Regulator are set out in legislation enacted by the Irish government and in EC directives. Supervision is effected through a combination of both off-site surveillance involving the examination of detailed returns from institutions, and on-site inspections consisting of examination by the Financial Regulator's supervisory staff of the books and records of supervised institutions.

Financial institutions in Ireland designated under the Criminal Justice Act, 1994, as amended, must take measures to counteract money laundering in accordance with the provisions of that Act; in addition, the Criminal Justice (Terrorist Offences) Act, 2005, gives effect in Ireland to the 1999 United Nations Convention for the Suppression of the Financing of Terrorism. The Financial Regulator, as part of its supervision process, is responsible for assessing the adequacy of the procedures adopted by the institutions that it supervises to

counter money laundering and terrorist financing, and also the degree of compliance by those institutions with such procedures.

### 1.2.6 THE REGULATION AND OVERSIGHT OF REGULATED MARKETS, EXCHANGES AND INVESTMENT INTERMEDIARIES

The primary legislation governing the provision of investment services in Ireland is contained in the Stock Exchange Act, 1995, and the Investment Intermediaries Act, 1995. These Acts transpose the Investment Services Directive into Irish law. The Stock Exchange Act, 1995, provides for the approval and ongoing supervision of stock exchanges and the authorisation and ongoing supervision of their member firms, while the Investment Intermediaries Act, 1995, covers the authorisation and ongoing supervision of all other investment firms, as well as investment intermediaries that are not investment firms.

These Acts broadly define the obligations of investment firms and stock exchanges, as well as their members, in terms of (a) the maintenance of proper and orderly regulation and supervision of investment firms and financial markets, and (b) the protection of investors. The legislation also establishes the framework within which the Financial Regulator must work when authorising and supervising stock exchange members and investment firms. The Central Bank Act, 1989, governs supervision by the Financial Regulator of financial futures and options exchanges.

The Financial Regulator is also the supervisory authority for investor compensation under the Investor Compensation Act, 1998. This Act transposes Directive 97/9/EC on investor compensation schemes into Irish law and provides a system of compensation in the event of an investment firm being unable to meet its financial obligations to its clients. A specialist company, Investor Compensation Company Limited, was established under this Act in order to put in place arrangements for the timely compensation of retail clients of a failed investment firm.



The Financial Regulator is the competent authority for the purposes of the Market Abuse (Directive 2003/6/EC) Regulations, 2005 (“Market Abuse Regulations”), which transposed Directive 2003/6/EC on insider dealing and market manipulation (market abuse), and its implementing directives, into Irish law. The Financial Regulator is also the competent authority for the purposes of the Prospectus (Directive 2003/71/EC) Regulations, 2005 (“Prospectus Regulations”), which transposed Directive 2003/71/EC into Irish law. While the Financial Regulator has delegated certain tasks relating to both of these Regulations to the Irish Stock Exchange, final responsibility in all instances rests with the Financial Regulator.

#### **1.2.7 COOPERATION WITH OTHER INSTITUTIONS**

In terms of carrying out its oversight role vis-à-vis payment systems, the CBFSAI maintains ongoing contact with the operators of these systems. With regard to the oversight of securities settlement systems, the CBFSAI cooperates with the Nationale Bank van België/Banque Nationale de Belgique in relation to the oversight of Euroclear (in which transactions in Irish government bonds are settled).

More generally, the CBFSAI cooperates with the relevant government departments as necessary as regards the drafting of legislation in the area of payment and securities settlement systems.

The Financial Regulator is an active member of both the Committee of European Securities Regulators (CESR) and the International Organization of Securities Commissions (IOSCO). The former is an independent committee of senior European securities regulators, while the latter is the international representative body for securities regulators.

### **1.3 THE ROLE OF PRIVATE AND OTHER PUBLIC SECTOR BODIES**

#### **1.3.1 FINANCIAL INTERMEDIARIES PROVIDING PAYMENT SERVICES**

Deposit-taking institutions in Ireland, which also provide a variety of payment services, can be classified in the following broad categories:

- licensed banks;
- building societies; and
- the POSB.

Apart from the state-owned POSB, all other deposit-taking institutions are supervised by the Financial Regulator and are classified as credit institutions under EC directives. Since May 2003, in accordance with the terms of the Central Bank and Financial Services of Ireland Authority Act, 2003, and the Credit Union Act, 1997, as amended, the Financial Regulator is also responsible for the regulation of credit unions.

The deposit-taking institutions, excluding the POSB, provide a variety of payment services through a network of 1,079 branches; this equates to approximately one branch per 3,800 inhabitants. Three of the seven banks that are full members of the retail clearing system are domestically owned, and these account for a large proportion of domestic retail banking business. Some domestically-owned banks have substantial foreign interests, and some credit institutions authorised in other EU Member States also operate in Ireland, either on a branch or cross-border basis. Three building societies, authorised under the Building Societies Act, 1989, account for a small proportion of both activity and volume in the payment system, and are primarily domestic in orientation.

The POSB is under the direct control of the Minister for Finance. It is not a credit institution as defined under the relevant EC directives, and only provides a limited payments service. It does, however, provide a significant deposit-

taking service and, in addition, sells savings instruments on behalf of the Minister for Finance. Thus the POSB is largely a savings institution, although it does provide a facility for the purchase of postal money orders in return for cash through its extensive network of more than 1,000 post offices.

### 1.3.2 NATIONAL TREASURY MANAGEMENT AGENCY

The principal role of the National Treasury Management Agency, which was established under the National Treasury Management Act, 1990, is the management of Ireland's national debt and borrowing programmes, and the issue of Irish government bonds as the agent of the Minister for Finance. Under the terms of the 1990 Act, the borrowing and debt management functions of the Minister for Finance, and related operational responsibilities, were delegated to the NTMA, which operates under the Minister's general control and is subject to the latter's directions and guidelines.

The Irish government bond market is based on a "primary dealer system". There are eight primary dealers recognised by the NTMA; these make continuous two-way prices in designated bonds in minimum specified amounts and within maximum specified spreads. There are also a number of stockbrokers which match client orders, but around 95% of turnover is accounted for by the primary dealers. The primary dealer system, which was introduced at the end of 1995, brought improved depth and liquidity to the market, while the bond repo market grew in tandem, adding to the liquidity in the bond market. Bond issuance is confined to a limited number of designated fixed rate benchmark bonds in key maturities, which are close to two, four, eight, eleven and fifteen years in maturity. Amounts in issue in the benchmark bonds exceed €5 billion each.

The NTMA also issues Exchequer Notes, once again as agent for the Minister for Finance. These are a flexible short-term funding product issued directly by the NTMA to a broad range of investors, including corporate investors,

banks and other institutional clients. The available maturities range from one day to one year, with a minimum investment amount of €250,000. Exchequer Notes are issued on a discount basis in line with the commercial paper market. The NTMA makes continuous two-way prices in Exchequer Notes, thereby maintaining an active primary and secondary market. Turnover in 2005 was €15.6 billion.

### 1.3.3 THE IRISH STOCK EXCHANGE

As at 31 December 2005, the Irish Stock Exchange had 28 members. There were 53 companies listed on the ISE's Official List, with some 1,900 investment funds and 1,500 specialist securities also listed. Average daily turnover in equities was €519 billion.

The ISE is responsible for devising the rules that govern its relationship with member firms, although these rules, which are designed to ensure the integrity of the market and the protection of investors, require the approval of the Financial Regulator. The rules cover both the conduct of business generally (i.e. relationships between stockbrokers and clients) and overall market supervision (i.e. the integrity of the market). The ISE monitors compliance by members with its rules; in this regard, it conducts periodic reviews with each of its member firms and reports on the outcome of these reviews to the Financial Regulator.

The law relating to the Irish securities market includes the Prospectus (Directive 2003/71/EC) Regulations, 2005, the Market Abuse (Directive 2003/6/EC) Regulations, 2005, the Companies Acts, 1963 to 2001, the Stock Exchange Act, 1995, and the Stock Transfer Act, 1963, as well as relevant case law. The Financial Regulator has chosen to delegate certain functions as competent authority under the Market Abuse Regulations and the Prospectus Regulations to the ISE. However, final responsibility for all functions as competent authority under these Regulations remains with the Financial Regulator. The law relating generally to the issue and trading of securities comprises the

Companies Acts, 1963 to 2005, the Stock Transfer Act, 1963, and case law.

The ISE is responsible for the investigation of insider dealing in relation to the Irish Enterprise Exchange market of the ISE under Part V of the Companies Act, 1990. The ISE is also the competent authority in respect of listing, pursuant to Regulation 7 of the European Communities (Stock Exchange) Regulations, 1984.

#### **1.3.4 FINEX EUROPE**

FINEX Europe operates in Ireland as a branch of the New York Board of Trade (NYBOT). See Section 4.1 for further details.

#### **1.3.5 THE IRISH PAYMENT SERVICES ORGANISATION**

The Irish Payment Services Organisation was set up in 1999 to act as the representative body of the payments industry in Ireland. There are currently three companies (IRISCo, IPCC and IRECC – see Section 3) operating under the auspices of this representative body, each being responsible for its own operating rules, settlement procedures, standards and access criteria. All members of IRISCo, IPCC and IRECC have the right to membership of IPSO.

IPSO is a limited company with a set of rules that define its formal relationships with IRISCo, IPCC and IRECC. The role of IPSO is mainly consultative and advisory; it is therefore entitled in turn to be advised by the three companies in advance of any proposed changes to access criteria, rules and standards. IPSO can also decide to refer any issues or concerns related to the payments industry in Ireland to the CBFSAI in its role as payment systems overseer.

Primary responsibility for all aspects of the implementation of SEPA in Ireland also lies with IPSO, which has established a dedicated task force in this regard (the SEPA Implementation Task Force; SITF). Membership of the SITF consists of representatives of all IPSO member banks, and the CBFSAI also

attends meetings of the Task Force in its capacity as payment systems overseer.

#### **1.3.6 THE IRISH BANKING FEDERATION**

The Irish Banking Federation, established in 1973, is the representative body for the banking and financial services sector in Ireland. The IBF's membership comprises over 60 institutions, including licensed domestic and foreign banks and financial services institutions operating in Ireland.

Working through its Council, a series of committees and its Secretariat, the IBF's stated purpose is to foster the development of a banking and financial services industry that contributes to the economic and social well-being of the country. The IBF operates at the national, EU and wider international levels.

In Ireland, the IBF engages with government, policy-makers, legislators, regulators and various consumer and business stakeholder interests in developing and implementing financial services legislation. At the EU level, the IBF represents the interests of the Irish banking and financial services sector on all key industry committees and, on the wider international stage, monitors and contributes to global financial initiatives on behalf of the sector.

#### **1.3.7 THE IRISH MORTGAGE COUNCIL**

Mortgage lenders provide housing finance to domestic borrowers. The Irish Mortgage Council, which was established at the beginning of 2003 and is affiliated to the IBF, is the representative body for mortgage lenders in Ireland. Membership comprises 12 financial institutions.

#### **1.3.8 THE FINANCIAL SERVICES OMBUDSMAN**

The Financial Services Ombudsman, which became operational on 1 April 2005, was established on a statutory basis under the Central Bank and Financial Services Authority of Ireland Act, 2004. The Financial Services Ombudsman is funded by levies on financial service providers and replaces existing

voluntary ombudsman schemes in Ireland both for credit institutions and for the insurance sector. The Financial Services Ombudsman deals independently with complaints from consumers about their individual dealings with financial service providers where the parties involved have been unable to resolve such disputes themselves.

### 1.3.9 INVESTOR COMPENSATION COMPANY LIMITED

Investor Compensation Company Limited was established under the Investor Compensation Act, 1998, in order to oversee arrangements for the compensation of retail clients in the event of an investment firm (i.e. a member firm of the stock exchange, or a bank or building society undertaking investment business) being unable to meet its financial obligations to clients.

## 2 PAYMENT MEDIA USED BY NON-BANKS

The debit card, which was introduced in Ireland in 1996, has now become a popular payment instrument. Credit cards are also widely used, and continuing technological developments have encouraged more widespread use of telephone and internet banking.

### 2.1 NON-CASH PAYMENTS

The use of payment instruments other than banknotes and coins is widespread in Ireland. Non-cash payment instruments used to make domestic small-value payments are generally drawn on current – payment – accounts. This type of account is generally non-interest-bearing, although many banks operate arrangements whereby no charges are made for transactions across current accounts. Balances on interest-bearing deposit accounts can be transferred to current accounts on demand with little difficulty.

#### 2.1.1 CHEQUES

The issue and acceptance of cheques as a means of payment is covered by the Bills of Exchange Act, 1882, the Cheques Act, 1959, as amended,

and also by case law. The cheque continues to be an important and widely used payment mechanism in Ireland. Some 132 million cheques, totalling €846 billion in value, were issued in Ireland in 2005.

In Ireland, the majority of cheques are currently truncated at the paying bank stage. There are no definite plans at present to introduce truncation at the collecting bank stage, although clearing system participants are currently investigating various aspects of cheque truncation.

Although cheque guarantee cards (of which some 1.1 million are currently in issue) are not actually payment instruments, they play a role in supporting payments, as their sole purpose is to guarantee the payment of a cheque up to a specified limit (currently €130). Most banks now issue multi-function cards which, as well as being used to guarantee cheques, can also be used as debit cards and to access ATMs.

#### 2.1.2 CREDIT TRANSFERS

The use of paper credit instruments has increased in recent years, with some 47 million paper credit transfers being processed in 2005, with a total value of €5.2 billion. The use of electronic credit transfers has also increased, particularly in connection with the payment of salaries by employers directly to their employees' bank accounts. Almost 115 million such items, with a total value of €165 billion, were processed in 2005.

#### 2.1.3 DIRECT DEBITS

Banks continue to promote paperless payment media, such as direct debits and standing orders, to all of their customers. Almost 96 million direct debits, with a total value of €56 billion, were handled by the Irish banking system in 2005. In particular, banks actively encourage large organisations that either generate or receive high volumes of recurring payments to use paperless electronic transfers.

#### 2.1.4 DEBIT CARDS

Two of the Irish clearing banks introduced a debit card scheme, known as LASER, in 1996; this followed the completion of a successful pilot scheme in late 1995. The LASER scheme has since expanded to include a total of seven credit institutions.

There were more than 1.2 million debit cards in issue as at 31 December 2005, and the total value of debit card transactions in 2005 was some €5.2 billion. On average, over 6.6 million debit card transactions are processed in Ireland every month. Retailers (some 40,000 throughout the country) accept LASER for debit card payments. LASER is predominantly Chip and PIN-enabled. Part of the LASER product comprises the provision of “cashback” to customers at the point of sale.

#### 2.1.5 CREDIT CARDS

The generic term “credit card” covers:

- credit cards of the Visa and MasterCard type;
- charge cards (as issued by American Express) which do not have an extended credit facility.

Visa and MasterCard are the main credit cards issued in Ireland. Since first becoming available in Ireland in the late 1970s, the credit card has continued to grow in popularity as a non-cash method of payment for goods and services.

There are currently almost 2.2 million credit cards in issue in Ireland. In 2005 credit cards were used for transactions with a total value of €10.68 billion. Outstanding debt on credit cards at the end of December 2005 was €2.3 billion, which accounts for approximately 14% of total personal credit (excluding mortgages) provided by deposit-taking institutions.

#### 2.1.6 ATM AND POINT-OF-SALE NETWORKS

The use of automated teller machines is widespread in Ireland, especially for cash withdrawal, although they may be used to

access other services. At the end of December 2005 there were approximately 4.4 million ATM cards in issue and some 2,944 ATMs in service throughout the country, which roughly equates to one ATM per 1,400 inhabitants. In 2005 ATMs were used to conduct approximately 178 million transactions, with a total value in the region of €24 billion. There is also an extensive network of point-of-sale (POS) terminals for credit and debit cards in Ireland.

#### 2.1.7 INTERNET AND TELEPHONE BANKING

All of the main credit institutions offer internet and telephone banking facilities to their personal and business customers, thereby facilitating around-the-clock access to routine banking services. Customers can also access a wide range of other services in this way, such as funds transfers, bill payments, share dealing and loan applications. As at 31 December 2005 there were over 1.65 million registered internet accounts and 2.6 million registered telephone accounts.

#### 2.1.8 RETAILER CARDS

No information is currently collected for these instruments.

#### 2.1.9 PREPAID CARDS

In 2005 one credit institution – in association with Visa – introduced a product called a “Virtual Value Voucher” (or “3V Voucher”), which is a disposable prepaid debit number, printed onto a paper receipt, issued from a POS terminal in participating retailers. These vouchers can be used to shop on the internet, over the phone, or via mail order anywhere that Visa is accepted.

#### 2.1.10 POSTAL INSTRUMENTS

The Post Office Savings Bank is operated by An Post, the state company which operates the national postal service. The POSB provides retail money transmission services for government departments, the main national telecommunications company and other public bodies, as well as for the household sector. The main payment instruments currently provided by the POSB are postal orders and money

orders, which are essentially the same as bank drafts. Other services, less important in terms of activity, include sterling drafts and the services of the euro giro system.

#### 2.1.11 OTHER PAYMENT INSTRUMENTS

Payable orders, which are a form of debit instrument analogous to cheques, are issued by the Paymaster General for the payment of civil service salaries and for goods and services. These instruments are treated in a similar manner to cheques insofar as they are collected through the banking system and settled bilaterally between the collecting bank and the Paymaster General via settlement accounts at the CBFSAI.

## 2.2 RECENT DEVELOPMENTS

The National Payments Advisory Group, an informal grouping involving the Irish government, the CBFSAI and IPSO, was formed in early 2006 to guide the creation and implementation of a programme aimed at improving the efficiency and inclusiveness of Ireland's payment infrastructure. Known as the National Payments Implementation Programme, this initiative has at its core the recognition that the development of a more competitive, efficient and cost-effective payments infrastructure in Ireland cannot be delivered by the banks acting alone; rather, it is a process requiring engagement with, and commitment from, the widest possible stakeholder community, including government, regulators, consumers and the business community.

Work has commenced to deliver this new payments environment, and a number of working groups will be set up to focus on specific topics, such as the following:

- moving paper-based payments to electronic equivalents;
- replacing cash with electronic payment alternatives.

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

Large-value payments and interbank settlements are effected using a fully automated RTGS system managed and operated by the CBFSAI. The system is interlinked with TARGET. Retail payment clearing functions are carried out by the clearing companies (IPCC and IRECC) established specifically for this purpose.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: IRIS

#### 3.2.1 INTRODUCTION

The Irish RTGS system, known as IRIS, commenced live operation in March 1997. The system, which is interlinked with the TARGET system, is owned by Irish Real-time Interbank Settlement Company Limited, but is managed and operated by the CBFSAI. The CBFSAI has a 2.6% share in IRISCo and also owns the interlinking software used to connect the IRIS system to TARGET. The operating costs of IRISCo are recovered from participants on the basis of their shareholdings in the company.

The RTGS system is fully automated and consists of two major components: the Central Accounting System (CAS), for which the software is provided by Logica, and the messaging system (SWIFT). All participants hold settlement accounts at the CBFSAI and must also be shareholders in IRISCo. The RTGS system is essentially the settlement account system of the CBFSAI.

#### 3.2.2 OPERATING RULES

The operating rules of the system are legally binding on all IRIS participants. A service level agreement is in place between IRISCo and the CBFSAI, the system manager and operator. The terms and conditions for holding a settlement account at the CBFSAI are also relevant to participation in the RTGS system and are legally binding on all participants.



### 3.2.3 PARTICIPATION IN THE SYSTEM

Access criteria for the IRIS system comply with the ECB's TARGET Guideline. In addition to credit institutions, the CBFSAI may also allow the national treasury (i.e. the NTMA, Ireland's national debt management agency) access to the system, as well as investment firms established in the EEA and organisations providing clearing and settlement services.

There are currently 21 direct participants in IRIS, namely 19 credit institutions, the NTMA and the CBFSAI, the last of which participates both on its own behalf and on behalf of the public sector and international customers. There are no indirect participants in the IRIS system.

### 3.2.4 TYPES OF TRANSACTION HANDLED

The transactions processed by the RTGS system include the following:

Interbank payments:

- interbank money market transactions (e.g. interbank loans);
- commercial interbank payments (e.g. customer payments); and
- settlement of interbank clearing (e.g. retail payment clearing).

Payments between the CBFSAI, settlement account holders and government accounts held at the CBFSAI:

- currency issue and withdrawal;
- changes in minimum reserve requirements;
- CBFSAI and government accounts at the CBFSAI: clearing (e.g. tax, government expenditure); and
- government bond issues, redemptions and dividends.

Monetary policy operations:

- open market operations;
- marginal lending facility; and
- overnight deposits.

Retail clearing is settled by the CBFSAI debiting the settlement accounts of those banks that are net debtors, and then in turn crediting the settlement accounts of the banks that are net creditors. The settlement accounts of net creditors are not credited until those of all net debtors have first been debited.

In exceptional circumstances, the CBFSAI may apply manual entries (i.e. account transfers) to the settlement accounts in the CAS.

### 3.2.5 OPERATION OF THE TRANSFER SYSTEM

All participants in RTGS are members of a SWIFT closed user group. A payment is initiated by the sending member transmitting a SWIFT payment message (MT 103, MT 103+, or MT 202) to the destination member. The payment message is marked as requiring settlement via IRISCo. SWIFT intercepts this message via the SWIFT FIN Copy (Y-Copy mode) service and holds the message pending receipt of a settlement response from the CAS. The SWIFT FIN Copy service transmits a partial copy of the payment message to the CAS, containing the following details:

- sending participant;
- destination participant;
- value date;
- transaction reference; and
- transaction amount.

The CAS then checks the format of the message and ensures that there are sufficient funds on the sending participant's account to cover the payment. If there are sufficient funds on the

account, the CAS settles the payment in real time by transferring the funds between the settlement accounts of the sending and destination participants, and sends a settlement response to SWIFT FIN Copy. SWIFT FIN Copy then forwards the full payment message to the destination participant. In the event that there are insufficient funds on the account of the sending participant, the payment is queued until sufficient funds are received to permit settlement.

The operating hours of the IRIS system are the same as for TARGET; likewise, operating days are those defined for TARGET in the TARGET Guideline.

### 3.2.6 TRANSACTION PROCESSING

Payment queues in IRIS contain both settlement requests and account transfers. These transactions are single debit and credit accounting transactions. Both sides of a transaction are posted simultaneously to participants' settlement accounts and receive the same time stamp. Participants in IRIS also have the facility to submit payments to the system for settlement on the next business day.

The CAS queues payments which are ready for settlement if there are insufficient funds available on the account of a sending participant. The CAS also queues payments if the system is busy. All queues are based on the FIFO (i.e. first in, first out) principle in order of priority by message type. Priorities can be assigned by the sending participant; in the absence of any assigned priority, a default value is set by the system. Queued payments may be cancelled or have their priority changed by the sending participant. As system operator, the CBFSAI has the facility to monitor all payment queues.

Gridlock occurs in IRIS if two or more payment queues become blocked. Where there is no shortfall of funds in aggregate throughout the system, the gridlock may be resolved by using a gridlock algorithm installed in the CAS. Use of this algorithm can be initiated manually, or

it can be preset to run at regular intervals. The algorithm examines all queues and then chooses a set of payments that can be settled. It then settles either some or all of the selected payments as one unit of work; in these circumstances, a reference on the payments concerned will indicate that they have been settled as part of a gridlock resolution process. Gridlock arising from an overall shortfall of funds in the system as a whole can be resolved by an injection of liquidity by the CBFSAI by means of intraday repos.

Participants have online access to their own account via the IRIS system's participant workstation network. This allows online viewing of their account balances and all settled transactions, together with their own outgoing unsettled payments. RTGS participants may also submit enquiries via SWIFT messages addressed to the CAS, which receive an automatic response.

### 3.2.7 SETTLEMENT PROCEDURES

Each participant has a single settlement account in the CAS, which is used to settle all of its payments in the system. A payment instruction under the IRIS RTGS system is deemed to be irrevocable at the point in time at which the sending participant's account is debited in the CAS. A payment instruction in IRIS can only be cancelled by the sending participant, or by the CBFSAI at the request of that participant. However, this can only be done if the sending participant's account in the CAS has not already been debited in respect of the payment concerned. A payment in the IRIS system is completed when the receiving participant's account is credited.

### 3.2.8 CREDIT AND LIQUIDITY RISK

Liquidity is provided to participants each morning when the system opens for business by means of account transfers by the CBFSAI – these account transfers are based on the amount of collateral lodged with the CBFSAI by each participant. Additional liquidity may also be made available if required – there is, in practice, no restriction on the amount of intraday liquidity

which may be provided by the CBFSAI to any participant, subject to the condition that all such credit must be fully collateralised. Liquidity is withdrawn from participants at the close of business each day by using the same account transfer mechanism.

Participants' settlement accounts at the CBFSAI are also their minimum reserve accounts. Only positive balances are permitted on these accounts; participants do, however, have access to minimum reserve balances for use for intraday payments. Participants may also access the deposit facility on request. Interest on deposits is paid at the rate set by the ECB.

In the event of any IRIS participant having insufficient funds to repay its intraday liquidity, the shortfall is treated as a request for access to the marginal lending facility. This lending attracts overnight interest at the rate set by the ECB. Should a participant require additional liquidity during the day, an intraday repo may be requested. Payments can only be made out of available funds; a technical feature prevents participants from maintaining negative balances on the IRIS system under any circumstances. The system therefore involves no credit risk for participants.

### 3.2.9 PRICING

IRISCo, as system owner, recovers its costs annually from IRIS participants. However, this is not done on the basis of transaction charges, but by dividing the total costs between all participants, each making a payment in proportion to its shareholding in the company. In calculating these costs, all identifiable costs incurred by both IRISCo and the CBFSAI (salaries, overheads, hardware, software, maintenance, depreciation, etc.) are taken into account.

In addition to the charges levied on participants by IRISCo, the CBFSAI separately bills IRIS participants in respect of the TARGET fees applicable to cross-border payments.

### 3.2.10 STATISTICAL DATA

In 2006 the IRIS system processed 1,217,628 transactions, with a total value of €6,656.4 billion. Of these totals, 731,824 transactions were domestic and 485,804 were cross-border; in value terms, the respective amounts were €3,539.6 billion for domestic and €3,116.8 billion for cross-border payments.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 THE STRUCTURE OF THE CLEARING SYSTEM

Two separate clearing companies have been incorporated to take responsibility for the retail payment clearing functions:

- Irish Paper Clearing Company Limited, which handles all paper payment instruments;
- Irish Retail Electronic Payments Clearing Company Limited, which handles bulk electronic payments.

Credit institutions joining any of the clearing companies as ordinary members (i.e. direct participants) are expected to pay any reasonable impact costs incurred by each of the existing participants in connection with their entry to the system. Such costs are determined by the clearing company concerned in consultation with the CBFSAI. Any credit institution authorised to conduct money transmission business may apply for associate membership (i.e. to become an indirect participant) of a clearing company, using an ordinary member as agent, thereby obtaining indirect access to the clearing system.

### 3.3.2 THE CLEARING SYSTEM IN OPERATION

#### 3.3.2.1 The clearing system for paper payment instruments

The paper clearing process, for which IPCC has overall responsibility, is described in detail in this section. Although the emphasis is on cheques, the processing of other paper payment instruments (e.g. credit transfers) follows the same general principles.

The IPCC system provides the mechanism through which participants exchange funds to honour cheques and other paper payment instruments used by their customers, both corporate and individual. The “Rules for Clearing” issued by IPCC govern the process whereby these payment instruments are exchanged for value between participants; the rules also govern the processes for dealing with unpaid items and for rectifying errors.

The cycle starts when a bank branch (the collecting bank branch) accepts a cheque or cheques lodged by a customer. Each cheque will already have been preprinted with magnetic ink to identify the bank on which it is drawn (the paying bank) and the account number of the relevant customer (the drawer). This information is read electronically at the collecting bank branch, thereby generating a computer file containing the data from all cheques accepted on a given day. The collecting bank branch then sends the cheques, together with the computer file, to its own clearing department.

The collecting bank’s clearing department gathers each day’s cheques from all of its branches and prints its own identity and the amount of the item in magnetic ink on the face of each cheque, which facilitates mechanical or automated sorting (this process is known by the acronym MICR – magnetic ink character recognition). This enables the cheques to be grouped according to the paying bank, thereby ultimately producing a list of cheques drawn on each paying bank.

The collecting banks’ clearing departments then exchange, on a daily basis, each day’s cheques with the paying banks’ clearing departments; the underlying data is also exchanged in electronic form in some instances. The role of IPCC in this regard is simply to provide a location for the exchange of cheques, although more recently this facility has been used less and less, with most of the participants exchanging the material concerned bilaterally. Any centralised exchanges still occurring take

place in the CBFSAI’s premises in Dublin each morning. These exchanges consist of staff members from each of the participants handing over payment instruments (cheques, drafts, etc.) destined for the other banks and receiving payment instruments destined for their own institutions.

Once the underlying paper payment instruments and payment data have been exchanged, the next step in the overall process is the settlement of the related obligations arising between IPCC participants. Most retail payment systems settle on a multilateral netting basis, with the resulting net obligations settled via the RTGS system. This is the case in relation to IPCC. IPCC’s function in relation to settlement relates to the calculation of overall settlement obligations. However, IPCC has in recent years chosen to outsource this settlement function to the CBFSAI. Staff in the Euro Settlements area of the Payments and Securities Settlements Department carry out this work, for which IPCC pays an annual fee to the CBFSAI.

In practice, the totals of all items for collection (by each collecting bank from each paying bank) are provided to the CBFSAI by all system participants. This information is sent on a daily basis by fax in list form. Receipt of faxes commences at 10.45 a.m. GMT and, once all of the faxes have been received, the relevant values are transcribed into a series of linked spreadsheets; these spreadsheets ultimately produce individual schedules showing details of the overall net position of each of the participants. These schedules are then faxed to all of the participants for their agreement, with the entire process, including correction of any errors, being completed by 1 p.m. GMT. The next step is the production of a “settlement advice sheet” that is faxed to all participants to notify them of their final position for that day’s exchange.

Finally, at 3 p.m. GMT, the settlement accounts (held at the CBFSAI) of each of the participants with an overall debit position on the day are debited, and the settlement accounts of those system participants in an overall credit position

on the day are credited, in order to complete the daily settlement process. The accounts of participants with overall credit positions are not credited until the accounts of those participants with overall debit positions have been debited.

### 3.3.2.2 The cheque clearing cycle

The clearing cycle for cheques drawn on branches of other banks, or on other branches of the same bank, is normally three business days.

To take an example, on day one a cheque is lodged directly to a customer's account at the bank branch where the account is held. The cheque is recorded as having been lodged on that date. The cheque is processed overnight as part of that day's clearing between banks, and on day two the customer's bank both receives and gives value for the cheque. On day three the cheque is debited to the account of the drawer (i.e. the party who wrote the cheque in the first instance), backdated to day two for value purposes.

However, for a variety of reasons, not all cheques are paid when first presented at the drawer's bank. There may, for example, be insufficient funds on the drawer's account to pay a cheque. Under the IPCC clearing rules, the drawer's bank has until close of business on the day following presentation (i.e. day four of the clearing cycle) to decide whether to pay a cheque or return it unpaid to the bank at which it was lodged. An unpaid cheque can in theory therefore be returned to the bank at which it was lodged on day five.

However, it should be noted that some banks can now debit the account of the drawer on day two of the clearing cycle, thereby removing the need to backdate for value purposes. In these circumstances, the steps outlined in the preceding paragraph in relation to unpaid cheques would each occur one day earlier (i.e. day four would become day three, and day five would become day four).

In summary, it is not certain that funds have indeed cleared until five business days have passed. For this reason, all banks advise customers not to withdraw funds against cheques that have not been "cleared for fate", i.e. honoured and paid by the bank on which they are drawn.

### 3.3.2.3 The EFT clearing system

The EFT clearing system, for which IRECC has overall responsibility, is described below. This system provides the mechanism through which participants exchange funds to honour the retail electronic payments made by their customers, both corporate and individual. The IRECC "Rules for Clearing" govern the process whereby such participants effect payment and provide value; the rules also govern the processes for dealing with unpaid items and rectifying errors.

The retail electronic payments cycle starts when a participating credit institution either accepts a file of electronic payment instructions from a customer (e.g. an employer might submit a file of salary payments) or itself generates such a file (e.g. a file of standing order or direct debit payments due on a particular date). The payment instructions contained in these files are then sorted by destination bank and the resulting files exchanged on a daily basis between the participating credit institutions using a common proprietary computer software package.

As is the case with the paper clearing system, the net obligations of IRECC participants are settled via the RTGS system, with this settlement function also being outsourced to the CBFSAI. In practice, the procedure outlined in Section 3.3.2.1 above is followed, with only the timetable being different. Details of each participant's position vis-à-vis the others are provided to the CBFSAI by all system participants on a daily basis by fax in list form. Receipt of these faxes commences at 4 p.m. GMT and, once all of the faxes have been received, the relevant values are transcribed into a series of linked spreadsheets, which are used to produce individual schedules showing

details of the overall net position of each of the participants. These schedules are faxed to all of the participants for their agreement by 8.30 a.m. GMT the following morning, with the entire process, including correction of any errors, being completed by 9.30 a.m. GMT, after which a “settlement advice sheet” is faxed to all participants to notify them of their final position for that exchange.

Finally, at 10.30 a.m. GMT, the settlement accounts of each of the participants with an overall debit position on the day are debited, and the settlement accounts of those system participants in an overall credit position on the day are credited, in order to complete the settlement process. As is the case in relation to the paper clearing system, the accounts of participants with overall credit positions are not credited until the accounts of those participants with overall debit positions have been debited.

#### 3.3.2.4 The EFT clearing cycle

Since 19 September 2005 the retail electronic payment system has operated on a “next-day value”, or two-day, cycle (i.e. customers provide a file of electronic payment instructions to their bank on day one, the information contained therein is exchanged with the other banks that same day, and the underlying interbank payments are settled and the payers’ and payees’ accounts are debited and credited on day two).

#### 3.3.3 THE “SPECIAL PRESENTATIONS” SYSTEM

There is a payment facility for large-value cheques known as the “special presentations” system. Cheques for €634,869 or more, provided that they are drawn on nominated bank branches located in central Dublin, may be presented at those branches up to 3 p.m. GMT daily for same-day value in central bank money. The bank on which the cheque is drawn completes the process by making an interbank payment via the RTGS system to the payee bank.

Cheques of a similar magnitude drawn on a branch which is not nominated may be presented to that branch and a bankers’ payment may be

obtained in return, which may in turn be presented at a nominated branch before 3 p.m. GMT. This facility is available on a reciprocal basis to all licensed banks on which cheques are drawn. Cheques for which value is given and received in this manner are settled on a gross basis in the settlement system.

Cheques paid via the “special presentations” system cannot be subsequently returned unpaid; in other words, the system provides both finality and value.

### 3.4 OTHER RETAIL PAYMENT SYSTEMS

#### 3.4.1 ATM AND POS NETWORKS

The ATM network in Ireland is not based on a centralised infrastructure in common ownership, individual banks having instead developed their own networks. However, the end result of this development pattern is that there are now 2,944 ATMs that are fully interlinked. The services available on ATMs include cash withdrawal and lodgement, transfers between accounts, account enquiries and statement and cheque book requests; ATMs may also be used for mobile phone top-ups. Bill payment facilities are available through part of the ATM network, allowing settlement of electricity, telephone and credit card bills; in addition, Visa and MasterCard credit card holders can use the ATM network for cash withdrawals. A number of ATMs also provide a foreign exchange service in appropriate locations.

#### 3.4.2 BILATERAL ATM ARRANGEMENTS

Each bank’s system automatically produces figures each day for the amounts owed to, or due from, the other clearing banks as a result of customers’ withdrawals and lodgements via interlinked ATMs. The debit items resulting from the use of ATMs during the day or over a weekend are settled the next working day through the clearing system.



## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

The Irish Stock Exchange lists a variety of different types of securities on its Official List, which is the regulated market of the Exchange. These securities include corporate securities such as equities, government bonds, exchange-traded funds, covered warrants, investment funds and specialist debt instruments. The ISE has an additional market called the Irish Enterprise Exchange, specifically designed for small to mid-sized companies.

#### 4.1.1 INSTITUTIONAL ASPECTS

As at 31 December 2005 the ISE had 28 member firms; on that date there were 53 companies listed on the ISE's Official List, with some 1,900 investment funds and 1,500 specialist securities also listed. In addition, there were 13 companies listed on the IEX market. Total market capitalisation (including Irish government bonds) as at 31 December 2005 was €225 billion and market turnover was €160 billion for that year. The Irish Stock Exchange Index, ISEQ, gives an overview of the market's performance and is published by Reuters continuously throughout the day.

The ISE monitors compliance by members with its rules, which cover both the conduct of business generally (i.e. relationships between its member firms and clients) and overall market regulation (i.e. relationships between its member firms). In this respect, the ISE conducts periodic reviews with each of its member firms, and reports on the outcome of these reviews to the Financial Regulator.

#### 4.1.2 FUTURES AND OPTIONS EXCHANGES

FINEX Europe is currently the only futures and options exchange operating in Ireland. FINEX Europe is a branch of The New York Board of Trade and was established in 1994 as part of the International Financial Services Centre in Dublin. The exchange operates on an open-outcry basis and trades a variety of US dollar-based currency and cross-currency futures and

options contracts. There are currently 38 local participants trading FINEX products on the Dublin floor. FINEX Europe's participation is drawn from a wide spectrum of individuals with a financial background and other entrepreneurs.

NYBOT is responsible for monitoring the compliance of FINEX Europe with the rules relating to matters such as membership, dealing, position and price limits, margining, guarantee fund arrangements and default procedures. NYBOT is regulated in the United States by the Commodity Futures Trading Commission (CFTC). The Financial Regulator has therefore developed a comprehensive mechanism for the approval of rules and the supervision of the members of FINEX Europe in conjunction with the CFTC.

All trades on FINEX Europe are cleared and settled through the New York Clearing Corporation (NYCC). NYCC is the designated clearing house for NYBOT. Although a NYBOT subsidiary, NYCC has its own separate membership, Board of Directors, elected officers and operating staff. NYCC provides clearing services with guaranteed settlement for its clearing members. In order to trade on FINEX Europe, all FINEX Europe participants have clearing accounts with NYCC clearing members.

NYCC performs two major functions: (1) reconciliation and clearing of all futures and options transactions made on NYBOT, and (2) assuring the financial integrity of such transactions. Through its system of financial safeguards and transaction guarantees, NYCC protects the interests of the trading public, members of the Exchange and its clearing members.

### 4.2 CLEARING

A central counterparty (CCP) clearing service was launched on 5 December 2005 in conjunction with EUREX Clearing AG, a subsidiary of the Deutsche Borse (see also the

German country chapter), CRESTCo and the ISE. Irish securities traded on the electronic order book of ISE Xetra that are CREST-eligible are CCP-eligible and may, therefore, clear through the CCP. CCP-eligible securities traded on the ISE Xetra platform are generally equities; however, the service also applies to the ISEQ 20 exchange-traded fund. The following are not CCP-eligible:

- trades undertaken “off order book” in CCP-eligible securities, otherwise known as “OTC” transactions, although these are also reported on ISE Xetra;
- trades in securities which are not issued by an Irish registered company;
- corporate bonds and government bond transactions, whether “on” or “off” order book, as the reporting of these securities is not captured through ISE Xetra; and
- certain residual stocks in CREST.

### 4.3 SECURITIES SETTLEMENT

All securities that are traded on the ISE have a standard settlement of T+3. Irish government bonds are traded on EuroMTS, the electronic trading system for market-makers in Irish government bonds, and are settled through Euroclear Bank. Most corporate securities are traded on ISE Xetra, the electronic trading system of the ISE. These securities are cleared by Eurex Clearing AG and are settled in the UK CREST system. Transfers of Exchequer Notes are recorded on a register maintained by the issuer, the NTMA.

#### 4.3.1 SETTLEMENT IN EUROCLEAR BANK

Transactions between Euroclear Bank members take place by book entry in Euroclear Bank, on either a delivery-versus-payment (DvP) or a free-of-payment (FOP) basis. Such transactions are not reflected individually on the register maintained by the CBFSAI, as they do not affect the overall balance on the Euroclear Nominees omnibus account on that register.

Cash settlement in respect of transactions involving private individuals or other non-Euroclear Bank participants takes place between the parties outside the Euroclear Bank system.

The settlement of trades in Irish government bonds in Euroclear Bank is governed by a legal agreement between the CBFSAI and Euroclear Bank, and an associated service description. These contractual arrangements cover the following areas:

- general principles;
- settlement and custody operations;
- fees; and
- contingency arrangements.

Arrangements are also in place to facilitate and record in the Euroclear Bank system changes the outstanding capital of all bond issues resulting from tranche and cancellation transactions by the issuers. A daily reconciliation process is carried out between the CBFSAI, in its role as registrar, and Euroclear Bank. A full reporting system is also in place.

Reflecting the importance of the role played by Euroclear Bank vis-à-vis Irish government bonds, the CBFSAI cooperates with the Nationale Bank van België/Banque Nationale de Belgique in relation to the oversight of Euroclear Bank, in accordance with the provisions of a memorandum of understanding agreed in this regard in 2002.

#### 4.3.2 CREST SETTLEMENT

CREST is used for the settlement of all corporate equities and warrants that are dealt on ISE Xetra, and also for settlement of certain corporate bonds. CREST operates rolling settlement on the underlying principle of guaranteed DvP. This means that settlement only happens when a security’s delivery is matched with payment. An ISE member firm must have arrangements in place to ensure that it can settle business dealt on the ISE.

The legislation covering settlement of Irish equities in CREST is contained in the Companies Act, 1990 (Uncertificated Securities) Regulations, 1996.

#### **4.3.3 SETTLEMENT OF EXCHEQUER NOTES**

Transfers of Exchequer Notes are recorded on a register maintained by the issuer, the NTMA. The NTMA settles securities and cash individually on a gross basis, with the cash leg being settled in central bank money in the domestic RTGS system.

#### **4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE CENTRAL BANK AND FINANCIAL SERVICES AUTHORITY OF IRELAND**

Irish government bonds transferred by counterparties to the CBFSAI as part of ESCB monetary policy operations, or for the purposes of obtaining intraday credit in the RTGS system, are recorded in the CBFSAI's name within the Euroclear System. Investments in Irish government bonds by the CBFSAI for ECB reserve management purposes are also held in Euroclear.

Similarly, transfers by counterparties of Exchequer Notes, either as part of ESCB monetary policy operations or for the purposes of obtaining intraday credit in the RTGS system, are recorded by the issuer, the NTMA.

The CBFSAI also makes extensive use of the CCBM, acting from time to time as both home central bank and correspondent central bank for other Eurosystem NCBs.



# GREECE

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## LIST OF ABBREVIATIONS

ACO	Athens Clearing Office
AE	Athens Exchange
BOGS	System for monitoring transactions in securities in book-entry form
HBA	Hellenic Bank Association
HCMC	Hellenic Capital Market Commission
HDAT	Electronic secondary securities market
HERMES	Hellenic Real-time Money transfer Express System
PSB	Postal Savings Bank

## USEFUL LINKS

Bank of Greece	<a href="http://www.bankofgreece.gr">www.bankofgreece.gr</a>
Hellenic Capital Market Commission	<a href="http://www.hcmc.gr">www.hcmc.gr</a>
Athens Exchange	<a href="http://www.ase.gr">www.ase.gr</a>
Hellenic Bank Association	<a href="http://www.hba.gr">www.hba.gr</a>
DIAS SA	<a href="http://www.dias-interbank.com.gr">www.dias-interbank.com.gr</a>
Athens Securities Depository SA	<a href="http://www.hcsd.gr">www.hcsd.gr</a>

## INTRODUCTION

The banking sector in Greece has evolved in line with international trends and has experienced a number of adjustments related largely to the adoption of the euro as a single currency. Credit institutions have broadened the range of services offered and have further developed their retail banking and real estate activities. Furthermore, Greek credit institutions have continued to expand in the countries of south-eastern Europe, be it through organic growth or acquisitions, and have, to some extent, reorganised their internal structures to improve cost-efficiency and adjust to the new scope of services offered.

Cashless means of payment have developed further, especially with regard to the use of credit cards, while mobile telephone and internet banking have also shown an upward trend. The RTGS system for large-value payments, HERMES, which was set up in 1998, continues to operate smoothly. The main net settlement system for retail payments, DIAS, has expanded further with the development of new services, via several sub-systems, for the clearing of a range of payment instruments and for ATM interoperability. Further developments are under way within the context of aligning the domestic payments environment with the requirements of the Single Euro Payments Area.

In the area of equities the most significant developments relate to the operational framework for the stock exchange trading platform (the creation of different market segments and the extension of trading times) and to further enhancements in stock market infrastructures. The Hellenic Capital Market Commission (HCMC) is the competent authority for stock market supervision.

The Bank of Greece has been entrusted by its Statute and legislation with the task of operating and managing clearing and settlement systems and for the oversight of payment and settlement systems. The Bank of Greece plays a dominant

role in the Greek payment system, as it operates and manages HERMES (the domestic RTGS system and Greek arm of TARGET), the government securities settlement system (BOGS) and the electronic secondary government securities market (HDAT). Furthermore, the Bank of Greece is the supervisory authority for credit institutions and other financial organisations.



## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL BACKGROUND

The framework for the establishment and operation of credit institutions is set out in Banking Law 2076/1992, as amended, which has codified banking legislation and transposed into Greek law the provisions of the Codified Banking Directive, including Directive 2000/46/EC on electronic money institutions. Under this Law, deposit-taking and credit activity is restricted to credit institutions. A number of other supervised entities are also permitted to engage in certain forms of credit provision, but under specific and very restrictive conditions and rules.

The Banking Law explicitly states that the Bank of Greece is the competent regulatory and supervisory authority for credit institutions and specifies the context for cooperation between the Bank of Greece and the respective supervisory authorities in the EU. The Bank of Greece's competence also encompasses regulation and supervision of money remittance enterprises and foreign exchange bureaus. The Banking Law covers: commercial banks; shipping banks; specialised credit institutions; cooperative banks; and electronic money institutions.

Commercial banks can undertake all types of banking operation and engage – either directly or through subsidiaries – in insurance, leasing, factoring, collective investment funds and investment services, as well as in the issuance and management of payment instruments, including the credit card business. They are also permitted to become members of the Athens Exchange (AE). Shipping banks grant loans to shipping companies and accept deposits in foreign currency from non-residents only. The Deposits and Loans Fund, controlled by the Ministry of Economy and Finance, constitutes the only remaining specialised credit institution. Its main function is to hold and manage funds in consignment. The Postal Savings Bank,

formerly a specialised credit institution supervised by the Ministry of Transport and Communication, has been transformed into a credit institution governed by the provisions of the Banking Law (pursuant to Law 3082/2002). Cooperative banks engage in the same operations as commercial banks, but only with their own members, other credit institutions or the government. They operate under a more restrictive regime and are subject to stricter rules on the solvency ratio and large exposures.

Payment services are provided mainly by credit institutions, but other companies are also allowed to act as intermediaries in funds transfers under a specific framework. The legislative framework governing such companies was reformed by Law 3148/2003 to include both a comprehensive set of provisions relating to the activities of funds transfers and remittances, as listed in the Banking Law, and the licensing of enterprises engaging exclusively in such activities. The licensed enterprises fall under the regulatory authority and supervision of the Bank of Greece.

The Hellenic Deposit Guarantee Fund was legally established in 1995, following the adoption of the relevant EU legislation, and is now governed by the provisions of Law 2832/2000. The fund is activated for the reimbursement of depositors by supervisory authorities or in cases of bankruptcy, and its resources are contributed by an ex ante financing scheme based on the banks' stock of deposits. The Fund is a private legal entity supervised by the Minister for Economy and Finance.

The HCMC, a public entity operating under the supervision of the Ministry of Economy and Finance, is the body primarily responsible for the protection of investors and market participants' compliance with securities market legislation. It supervises stock markets and licenses and supervises collective investment undertakings and investment firms (the latter in accordance with the provisions of

Law 2396/1996, which has transposed Directive 93/22/EEC on investment services).

The competent authority for competition issues is the Competition Committee, operating at the Ministry of Development. The Ministry of Development is also responsible for consumer protection in general. In the field of bank-relevant consumer issues, the Bank of Greece is involved in a number of aspects of business conduct, in particular the issue of price transparency. In this context, the Bank of Greece has issued Governor's Act 2501/2002 on transparency in customer transactions with credit institutions. The Act provides, inter alia, for a series of disclosures regarding the institutions' pricing policies for basic banking services. The Bank of Greece has fostered enhanced consumer information, and its website contains details on the pricing of banking services by credit institutions operating in Greece.

Payments and payment systems in Greece are governed both by European Union legislation and national legislation. With regard to European Union legislation, the provisions of the Consolidated Banking Directive (Directive 2006/48/EC) apply; these provisions were incorporated into Greek legislation by way of Law 2076/1992, as amended. The following European Union legislation, as transposed into Greek law, also applies:

- Directive 97/5/EC on cross-border credit transfers, transposed into Greek legislation by means of Presidential Decree 33/2000;
- Regulation (EC) No 2560/2001 on cross-border payments in euro;
- Directive 98/26/EC on settlement finality in payment and securities settlement systems, transposed into Greek legislation by way of Law 2789/2000;
- Commission Recommendation 97/489/EC concerning transactions by electronic payment instruments, incorporated into

Greek legislation by means of joint Decision Z1-178/2001 of the Ministers for Economy and Finance, Development and Justice;

- Directive 2000/31/EC on electronic commerce, incorporated into Greek legislation by means of Presidential Decree 131/2003; and
- Directive 2002/47/EC on financial collateral arrangements, incorporated into Greek legislation by way of Law 3301/2004 of 22 December 2004.

With regard to national legislation, the following are applicable to payments and to the operation of payment systems:

- Monetary Policy Council Act 50/31.07.2002 on the “establishment of a framework for the oversight of payment systems”; the Act reflects relevant provisions in the Bank of Greece's Statute, pointing to the competence of the Bank of Greece in the area of payment and settlement systems;
- Monetary Policy Council Act 46/21.12.2000 on the “Operating Rules of the HERMES system”, as amended by Monetary Policy Council Act 52/01.07.2003; and
- Joint Decision of the Ministers for Economy and Commerce 6617/B 104/11.02.1992, based on Article 88 of Law 1969/1991, which provides for the interbank procedure applicable to cases of void personal cheques.

The circulation of cheques is governed by Law 5960/1933, which incorporates the Geneva Convention of 19 March 1931, to which Greece is a party.

Data relating to cheques are collected by the interbank information system TEIRESIAS. The system, operated by the société anonyme Teiresias, was set up on the initiative of the Hellenic Bank Association (HBA) and collects information in database form on:

- a) persons who have drawn uncovered cheques and bills of exchange;
- b) unilaterally terminated contracts involving loans and credit cards; and
- c) unfavourable court rulings regarding confiscation, mortgages, etc.

Access to this information is restricted to credit institutions and directly interested parties.

## 1.2 THE ROLE OF THE BANK OF GREECE

### 1.2.1 GENERAL RESPONSIBILITIES

The Bank of Greece was established in 1928 under Law 3424 of December 1927 as a *société anonyme* listed on the Athens Exchange; it has 27 branches and 67 agencies throughout the country.

The Statute of the Bank of Greece was amended by Law 2548 of 12 December 1997 to meet the requirements of the Treaty establishing the European Community (Treaty) and the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB) for Stage Three of EMU. The Statute of the Bank of Greece was further amended by Laws 2832/2000 and 3193/2003.

Article 2 of the Statute of the Bank of Greece states that the Bank of Greece is an integral part of the ESCB and that, upon adoption of the euro as the national currency of Greece, it must perform all ESCB-related tasks in accordance with the provisions of the Statute of the ESCB. More specifically, it states that “the Bank of Greece [shall act] in accordance with the Guidelines and Directives of the ECB as stated in Article 105(2) and (3) of the Treaty and Articles 3 and 14.3 of the Statute of the ESCB”.

The Statute of the Bank of Greece further states that, in addition to the monetary function which it exercises within the monetary policy framework of the Eurosystem, the Bank of Greece is responsible for the oversight

of payment and settlement systems (see Section 1.2.2) in order to safeguard their smooth functioning. The Statute also provides that the Bank of Greece is the authority competent to supervise credit institutions and certain other financial institutions.

### *Supervision*

The objectives of the supervision exercised by the Bank of Greece are financial stability and the efficiency of the credit system and the financial sector in general, and transparency in bank transactions. Within that context, the Bank of Greece has set out the framework for safeguarding capital adequacy and ensuring a level playing-field for credit institutions and certain other financial sector institutions operating in Greece. As regards the transparency objective, the Bank of Greece defines general principles pertaining to transparency of procedures and the terms and conditions of transactions. Compliance with the relevant regulations is monitored, *inter alia*, by means of on-site and off-site inspections.

Furthermore, pursuant to Law 2331/1995 – as amended by Law 3424/2005 – relating to the prevention of money laundering activities, the Bank of Greece is the authority competent to monitor the Law’s enforcement by credit institutions and certain other financial institutions. In accordance with the provisions of that Law, appropriate circulars (such as Administrative Circular 16/2.08.2004) have been issued with the aim of preventing and containing money laundering.

### *Pricing policies*

The pricing policy of the Bank of Greece with regard to the RTGS payment system is described in Section 3.2.8. Services provided to the public sector are subject to charges on the basis of framework agreements. Operations involving credit institutions and the private sector are subject to periodically revised charges. Banking services prices in Greece are freely negotiable, albeit that a number of types of interbank transaction are priced on the basis of interbank

agreements which establish different classes of charge.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

By virtue of Articles 2 and 55 of its Statute, the Bank of Greece is legally responsible for the oversight both of payment and settlement systems and of payment instruments, with the aim of ensuring the effectiveness and reliability of those systems and, moreover, of reducing systemic risk. According to the provisions of its Statute, the Bank of Greece may “establish operating rules and oversee payment systems, with a view to ensuring the efficiency and soundness of these systems and, in particular, to reducing systemic risk and strengthening competition. Moreover, it may set rules and oversee the operational reliability and legal safety of means of payment, with a view to safeguarding their efficiency, in accordance with the provisions applicable in the ESCB framework”.

The provisions of the Statute are specified in Monetary Policy Council Act 50/31.07.2002 on the “establishment of a framework for the oversight of payment systems”. This Act is interpreted in line with the oversight policy of the Eurosystem and lays down the objectives, scope, general principles and methods of oversight. According to the Act, the scope of oversight encompasses payment systems, including systems managed by private companies and those managed by the Bank of Greece, and payment instruments. The conduct of oversight entails the collection of data and information on payment systems and instruments in line with the reporting framework and, where necessary, on-site inspections. The Bank of Greece may propose measures to payment system managers and payment instrument service providers and has the power to impose penalties on overseen entities that do not comply with its recommendations. In performing its oversight function, the Bank of Greece may cooperate with other competent supervisory authorities within and outside Greece.

### 1.2.3 THE OPERATIONAL ROLE OF THE BANK OF GREECE

The Bank of Greece maintains a dominant role within the Greek financial and money markets in its capacity as owner and operator of the real-time gross settlement system HERMES, the securities settlement system for government securities BOGS, and the government securities trading platform HDAT. All three systems operate from the headquarters of the Bank of Greece. HERMES is described in detail in Section 3, while BOGS and HDAT are covered in Section 4.

In accordance with the relevant legislative framework, the Bank of Greece defines and formulates the rules and regulations governing the payment and securities settlement systems which it manages. For each of these systems, participants enter into a legally binding membership agreement on adherence to the system’s operating rules. The operating rules of each system are incorporated in a single legislative instrument with the status of a law (Governor’s act or act of the Monetary Policy Council). Issues relating to payment systems and monetary policy are regulated by means of acts of the Monetary Policy Council of the Bank of Greece.

### 1.2.4 ACTIVITIES IN THE AREA OF SECURITIES SETTLEMENT SYSTEMS

The Bank of Greece operates BOGS, the securities settlement system for Greek government securities in book-entry form. The legal and operational details are presented in Section 4. Furthermore, the Bank of Greece has developed and operates HDAT, an electronic trading platform for government securities. HDAT is a regulated market under the provisions of Directive 93/22/EC and is managed by its participants.

BOGS has been assessed annually, since 1998, in accordance with the Eurosystem’s user standards for its credit operations and been found to be fully compliant and eligible for use by the Eurosystem. These standards were formulated with a view to ensuring the

minimisation of risks in Eurosystem credit operations and relate mainly to legal soundness, the operational reliability of the settlement platform (including contingency plans and backup facilities), intraday finality in central bank money, adequacy of risk management measures and system operating hours.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 THE HELLENIC BANK ASSOCIATION**

The Hellenic Bank Association is a non-profit organisation representing Greek and foreign banks operating in Greece. It was founded in 1928 and today has 28 members, of which 24 are regular and 4 associated.

Regular membership status is granted to any credit institution having its head office in Greece and to any foreign credit institution providing banking activities in Greece on the basis of an EU passport or with the permission of the Bank of Greece. Credit institutions which do not fulfil the above conditions, as well as any leasing and factoring companies and subsidiary companies of credit institutions, may become associate members.

According to its Articles of Association, the HBA, in cooperation with its member banks, has the following objectives:

- to represent the Greek banking industry in the activities of local and international organisations;
- to improve the banking system's overall image and increase public confidence in banking; within that context, one of its aims is to ensure – via the services offered by the Banking Ombudsman – the resolution and amicable settlement of disputes between private customers and banks;
- to engage in activities of common interest to its member banks;

- to promote banking cooperation in all areas of banking activity; and
- to promote basic and additional training.

The HBA monitors regulatory and other developments, including issues relevant to central banking, and offers feedback to its members. Its activities include the conduct of research on payment system development, on the operation of interbank payment systems and on matters pertaining to technology and the standardisation of services and procedures.

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

Cash remains relatively important in everyday transactions, especially as a means of making low-value payments. However, a trend towards replacing cash with other payment instruments has been observed in recent years.

### **2.2 NON-CASH PAYMENTS**

The number of non-cash payments has been increasing constantly, reflecting the public's growing familiarity with the use of cashless payment instruments. This development can be attributed to the promotion of such payment instruments by banks, the ease with which they can be used by consumers and the benefits of their automation with regard to execution times.

In the period 2001-05 the total number of transactions carried out with the available cashless payment instruments increased by 16.2% per year on average, and the value of transactions by 7.5%.

#### **2.2.1 CREDIT TRANSFERS**

Credit transfers have become attractive to customers, owing to banks having developed alternative access channels to this instrument (i.e. telephone, ATM and internet banking), and the short execution times involved. As a result,

over the last five years, their average volume has increased by 55.8% per year on average, with the average value of transactions increasing by 7.8%.

With regard to internet-initiated credit transfers, 6.7 million transactions were effected in 2005, accounting for 23.4% of the total volume of credit transfers, while the value of transactions amounted to €794.3 billion, accounting for 3% of the total value.

### 2.2.2 CHEQUES

Cheques constitute a traditional payment instrument in the domestic market and are used mainly for corporate payments. In 2005 a slight decline in their volume was recorded, possibly revealing customers' increasing preference for other payment instruments.

### 2.2.3 DIRECT DEBITS

Direct debits are offered by banks as an alternative cost-effective payment instrument. The number of enterprises, either public or private, offering their customers the possibility to make payments using the direct debit instrument has been increasing constantly.

During the last five years direct debits have increased by 28.7% per year on average in terms of volume, and by 35.8% per year in terms of value.

### 2.2.4 PAYMENT CARDS

Payment cards have evolved into a common and widely accepted payment instrument throughout the country owing to their promotion by banks, their ease of use and their acceptance in electronic commerce. The majority of card transactions are effected with credit cards.

Over the last five years the number of payment cards has increased by 7.9% per year on average. The volume of transactions with payment cards has increased by 8.6% per year on average, and the respective value by 28.5% per year.

### *Debit cards*

The number and use of debit cards has increased substantially during the last five years, owing mainly to the replacement of cash cards with cards incorporating a debit function in addition to the cash function. In the period 2001-05 the number of debit cards in circulation increased by 7.2% per year on average. The respective increase in the volume of transactions was 37%, while the increase in the value of transactions was 64.2%.

### *Credit and delayed debit cards*

Credit and delayed debit cards are widely used. Their number has been increasing constantly over the last five years, owing to their intensive promotion by banks and high demand on the part of the public. In addition, credit cards constitute the main payment instrument used in electronic commerce. Their extensive use is also closely related to incentives provided to cardholders, such as payments in interest-free instalments and retailer loyalty schemes. During the period 2001-05 the number of credit and delayed debit cards in circulation increased by 8.7% per year on average. The volume of transactions increased by 7.4% on average, and the respective value by 27.2% per year.

### *Prepaid cards*

There are various types of single-purpose prepaid card in use, such as telephone cards, mobile phone cards and internet access cards. Statistical data for this payment instrument are not available. E-money cards are presented in Section 3.4.1.

### *ATMs and POS networks*

During the period 2001-05 the number of ATMs in the country increased significantly, although at a slowing annual rate (of 9% per year on average). POS terminals have also expanded significantly, although likewise at a diminishing rate (of 15.4% on average within the same period).

The increase in the number of ATMs has been due mainly to the expansion of banks' branch networks in provincial areas and to off-site



ATMs in places with high business potential (e.g. ports and retailer stores). In some cases, ATM networks are interlinked and used by groups of banks. All networks are interlinked through the DIAS ATM system, which enables switching (i.e. it allows customers to use the ATMs of banks other than the card-issuing bank to make cash withdrawals and balance enquiries). In recent years, ATMs have been technically upgraded to offer credit transfer services, as well as the discharge of payment obligations (e.g. payment of credit card bills and loan instalments).

In the last two years a new type of terminal, the Automated Payment Center (APC), has been introduced into the banking system. The APC, which is located inside the bank premises, is a device which accepts payments in cash by the customer using his/her account number; it is used exclusively for the automated payment of credit card bills and loan instalments, without the presence of a payment card. There were 155 APCs in operation in 2005.

#### 2.2.5 POSTAL INSTRUMENTS

Postal money orders are issued through post offices. They constitute paper-based payment orders used for money remittance between payer and payee, without requiring any of the parties involved to hold a bank account. Postal orders remain, to some extent, in demand, owing to the extensive network of post offices; however, their use for bulk payments by certain institutions, such as certain social security pension funds, is declining in favour of instruments directed via banks' networks.

### 2.3 RECENT DEVELOPMENTS

A significant increase has recently been observed in the use of non-cash payments. This trend can be attributed to the intensive promotion of cashless payment instruments by banks, to the functional features of such instruments – e.g. ease of use and short execution times – and to the expansion and technical upgrading of the services available on ATM and POS networks.

In addition, many credit institutions have – in line with international trends – introduced payment services based on internet technology, i.e. web/mobile banking and electronic commerce, allowing the use of cashless payment instruments. However, at the present time the number of internet payments is still low.

European developments in payment technology and practices have also affected cards, POS and ATMs, which are gradually migrating to the EMV standard. All banks have adopted and offer their customers the IBAN and BIC standards, while the majority of credit institutions adhere to the Credeuro and ICP conventions.

## 3 INTERBANK PAYMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

Funds transfers between credit institutions are effected via the payment systems operating in Greece. All credit institutions in Greece hold a current account with the Bank of Greece, which also serves as the settlement account for the purposes of the RTGS system, HERMES.

HERMES is a component of TARGET and processes domestic and cross-border payment orders in euro. Statistical data relating to HERMES are included in Section 3.2.9.

There are two payment clearing systems in operation: DIAS, which handles retail payments (truncated cheques, ATMs, credit transfers and direct debits), and the Athens Clearing Office (ACO), through which only cheques are cleared. In both systems, settlement is effected via HERMES on the accounts held by the credit institutions with the Bank of Greece.

The two clearing systems fall under the scope of the Bank of Greece's oversight capacity.



## 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: HERMES

HERMES is the real-time gross settlement system owned and managed by the Bank of Greece. It has been in operation since March 2000 and is used for credit transfers by the Bank of Greece and credit institutions.

HERMES provides the infrastructure that ensures the smooth flow of funds in the domestic market and, through TARGET, to all EU countries, thus facilitating the implementation of monetary policy and minimising settlement risk.

The average monthly turnover of the domestic system was €468 billion in 2005 and €573 in 2006, whereas the average number of transactions per month was 116,225 in 2005 and 126,512 in 2006.

### 3.2.1 OPERATING RULES

HERMES provides real-time settlement of customer and interbank payment orders, subject to the availability of funds in the sending participant's settlement account held with the Bank of Greece. The settlement account can be overdrawn only against collateral, within the framework of Eurosystem credit operations. The settlement of balances of other payment and securities settlement systems in Greece is also processed via HERMES.

The operating rules and procedures governing HERMES are laid down in its Operating Regulation of December 2000, as amended, which has been ratified and enacted by acts of the Monetary Policy Council. The Regulation covers, inter alia, the system's scope, membership conditions and procedures, operational issues (e.g. settlement accounts, types of HERMES order and settlement procedures), intraday credit, pricing and reimbursement schemes, and legal issues (e.g. responsibilities and obligations of the system manager and participants, violation of rules and dispute resolution).

### 3.2.2 PARTICIPATION IN THE SYSTEM

Any credit institution incorporated or established in Greece by means of a local branch, or incorporated or established in another EEA country and duly authorised to operate in Greece may become a member of HERMES, subject to the approval of the Bank of Greece. Approval is granted only after the entity has demonstrated that it has an adequate technical and operational infrastructure and is subject to prudential supervision, and submits a satisfactory legal opinion as to its suitability for membership.

Membership may also be granted – subject to provisions set by the Bank of Greece – to the treasury departments of central or regional governments of EU Member States, to public sector bodies of EU Member States, and to investment firms and organisations providing clearing or settlement services which are subject to oversight by a competent authority.

The participation procedure requires that candidates:

- submit an application to the Payment Systems Department of the Bank of Greece;
- submit a satisfactory legal opinion as to “capacity” and “country”, the latter applying only to foreign candidates;
- enter into a membership agreement and accept the system's operating rules;
- hold or open a settlement account with the Bank of Greece; and
- pay the entry fee.

### 3.2.3 TYPES OF TRANSACTION HANDLED

HERMES is available for the processing of both interbank and customer payments, irrespective of their value. Its primary goal is to attract all large-value payments in order to reduce systemic risks effectively.

Certain payments are settled exclusively via HERMES. These are payments related to:

- monetary policy operations;
- the settlement of the euro leg of foreign exchange operations involving the Eurosystem;
- funds transfers in which the Bank of Greece is involved either as a receiving or a sending party; and
- the cash settlement of BOGS securities transactions.

In addition, the balances of the existing netting systems operating in Greece (with the exception of the system of the Athens Exchange) are settled through HERMES.

#### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

HERMES accepts payments between 7 a.m. and 6 p.m. CET. No payment orders are accepted for processing after the close of business.

Each participant holds a settlement account in HERMES. Upon settlement of a payment order, HERMES produces a debit and a credit confirmation for the sender and the receiver respectively. During the system's operating hours, participants may submit enquiries about the status of payments, cancellation orders for payments which are pending in the queue and balance request messages, as well as general purpose messages requesting any type of information.

The cut-off time for customer payments is 5 p.m. CET. A balance report containing information on the account balance and the total value of queued payment orders is sent to all participants immediately after this cut-off time. A balance report is also sent to all participants when HERMES closes at 6 p.m. CET. At the end of the business day, i.e. after the transactions related to standing facilities have been completed, HERMES forwards to all participants a detailed statement of all flows to

or from their settlement accounts, as well as a statement of the total amount to be settled on future value dates and the queued payment orders which were cancelled at the close of the system.

After the system has closed, any debit position on a settlement account is automatically deemed to be a request for recourse to the marginal lending facility. Credit balances at the end of the business day are included in the calculation of the minimum reserve requirement.

In exceptional circumstances, contingency procedures are implemented. These procedures are based on manual processing, whereby operators simulate the functioning of the payment system application with the help of PC-based tools. With regard to cross-border payments, the arrangements agreed in the context of TARGET are applied.

#### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

All HERMES-related software components are implemented on a mainframe computer system. The SWIFT FIN network provides the messaging system for HERMES. Participants may submit paper-based payment orders to the Bank of Greece to be entered manually into the system, as a contingency procedure.

The premises of the Information Systems Department, in which the mainframe computer is located, are situated approximately 8 km from the Bank of Greece's head office. Communication between the mainframe and the terminal stations at the head office is supported by leased lines.

#### 3.2.6 SETTLEMENT PROCEDURES

For the purpose of settling domestic and cross-border payments, each participant holds a single settlement account with the Bank of Greece.

The system attempts to settle only payment orders with a same-day value. This covers those orders received either on the settlement day in question or up to two working days prior to that day. Payment orders with a future value are stored by the system for settlement on the

specified value date. In the case of payment orders for same-day settlement, participants may specify a settlement time later than the time of entry of their payment orders into the system. In such instances, payment orders are stored and processed for settlement at the pre-specified time.

The settlement account is debited where sufficient funds (including funds in the settlement account and funds obtained through the intraday facilities) are available. A payment order that cannot be settled remains in a queue until the system closes, at which time it is automatically cancelled. Partial settlement of a payment order is not permitted.

HERMES provides two levels of priority to distinguish between urgent and regular payment orders. Payment orders are settled on the basis of the level of priority assigned to them by the sending participant. Payment orders with the same level of priority are settled in accordance with the time of arrival (FIFO principle).

Optimisation, a process that performs multilateral netting for all involved parties, can be activated at the discretion of the settlement manager in order to resolve gridlock situations.

Payment orders are irrevocable and final once the sending participant's settlement account has been debited.

The balances of the netting systems (ACO, DIAS and BOGS) are settled through HERMES at specified times (3.45 p.m. and 4 p.m. CET for ACO and DIAS respectively, and more than once per day for BOGS, for which final settlement of net balances takes place at 3.30 p.m. CET).

Each netting system transmits HERMES participants' settlement balances in the form of an electronic file.

During the settlement attempt of each netting system the flow of HERMES payments is

suspended. If the settlement attempt is unsuccessful, the respective funds of all banks with short positions will be blocked. This feature aims to reduce the risk of there being more banks with insufficient funds in their settlement accounts at the next settlement attempt.

### 3.2.7 CREDIT AND LIQUIDITY RISK

A number of risk reduction measures have been incorporated into the design of HERMES. First, having an RTGS system managed by a central bank and featuring real-time settlement in central bank money eliminates the credit risk from a payment systems perspective.

Demand for liquidity is accommodated through the provision of intraday credit by the Bank of Greece against collateral, in accordance with the framework and conditions established by the Eurosystem. The collateralisation technique used since May 2002 has been pooling pledge.

HERMES also features a queuing mechanism for payment orders that cannot be settled owing to insufficient liquidity in the sender's account. This mechanism facilitates the liquidity management of the credit institutions, since it allows for the immediate settlement of pending orders as soon as funds become available. Moreover, if a large number of payments accumulate in the queue, a gridlock resolution mechanism is initiated. Future value date queues are also available in HERMES, with the aim of assisting banks in scheduling their obligations in a timely manner.

### 3.2.8 PRICING

The pricing of HERMES services is based on the cost recovery principle. The pricing policy provides for the possibility of periodic revision of all fees in the event of changing business conditions – for example, a change in the number of participants, or the emergence of alternative payment channels.

Members of HERMES are required to pay an entry fee of €45,000 and an annual fee (currently €10,000) which is set each year by the Monetary

Policy Council of the Bank of Greece on the basis of the cost recovery principle. Regressive tariffs apply to both domestic and cross-border payment orders on a monthly basis. According to these tariffs, the transaction fee for the first 100 transactions is €1.50 and €1.75 for domestic and cross-border orders respectively. For the following 900 transactions the fee is €1.00 for both domestic and cross-border orders, and for transactions in excess of 1,000 the fee is further lowered to €0.80. The transaction fee for other transaction types, such as enquiry and cancellation orders, or paper-based payment orders, is currently €1.50.

### 3.2.9 STATISTICAL DATA

Statistical data refer to 2004, 2005 and 2006.

## 3.3 LARGE-VALUE PAYMENT SYSTEMS

HERMES is currently the only system focusing primarily on large-value payments.

## 3.4 RETAIL PAYMENT SYSTEMS

### 3.4.1 E-MONEY SCHEMES

An e-money network-based scheme, EgnatiaPrepay, has been in operation since the beginning of 2002. This e-money product was launched by a bank for online internet transactions, which are effected via a number of electronic shops subscribing to the scheme. The scheme has been developed, operated, managed, technically supported and promoted by the bank in question, which also acts as issuer of value, clearing institution, developer and supplier of software to users and merchants.

### Functional aspects

Currently the payment instrument has domestic, single currency (EUR) functional features. The electronic device on which the monetary value is stored takes the form of an anonymous reloadable “virtual” account that is set up in the information system of the bank when the user first enters a unique random 16-digit secret code on the bank’s website.

During its four years of operation the scheme has recorded a negligible customer base and transaction volume/value. The limited acceptance by the public may be attributable to poor promotion of the product combined with a preference for the use of cash for low-value payments and the only moderate pace of expansion of the internet in Greece.

## 3.4.2 CLEARING SYSTEM: THE ATHENS CLEARING OFFICE

### 3.4.2.1 General overview

The ACO is a multilateral, paper-based, cheque clearing system which settles participants’ accounts with the Bank of Greece through the RTGS system HERMES. Its objective is the same-day clearing of cheques presented by and drawn on system participants and the provision of related information.

The ACO operates on the premises of the Bank of Greece, with whose personnel it is staffed. The central clearing office is located at the Bank’s headquarters, and there are 68 regional clearing offices across the country, which are located at either a branch or an agency of the

Table I Transactions via the real-time gross settlement system HERMES

	2004		2005		2006	
	Number of transactions	Value of transactions (EUR millions)	Number of transactions	Value of transactions (EUR millions)	Number of transactions	Value of transactions (EUR millions)
1. Domestic	1,024,108	1,675,300	1,078,621	3,157,922	1,194,058	4,384,691
2. Cross-border	340,427	2,021,865	316,083	2,459,569	324,083	2,488,131
Total via HERMES	1,364,535	3,697,165	1,394,704	5,617,491	1,518,141	6,872,822

Bank. All clearing offices are linked to the Bank of Greece's Information Technology (IT) Centre.

The ACO is a designated system under Law 2789/2000, which transposed Directive 98/26/EC on settlement finality into Greek law.

#### 3.4.2.2 Participation in the system

All credit institutions with head offices or branches in Greece are entitled to become ACO members. The procedure for obtaining membership involves interested parties submitting an application to the ACO (which must then be approved by four of the five members of its Council), formally accepting the ACO's Statute and paying an entrance fee.

The ACO currently has 53 members. The Bank of Greece is a member of the ACO and chairs the five-member Council.

#### 3.4.2.3 Types of transaction handled

ACO handles the clearing of bank drafts and private cheques drawn on banks operating in Greece, whether denominated in euro or foreign currencies.

#### 3.4.2.4 Operation of the transfer system

The ACO has set cut-off times of 3 p.m. CET (Monday to Thursday) and 2.30 p.m. CET (Friday) for submissions to the central clearing office for same-day clearing. The cut-off times for submissions to the regional clearing offices are set at 2.30 p.m. CET and 2 p.m. CET respectively.

The daily operational procedure requires buying banks to submit cheques in physical form to clearing offices for clearing. Cheques are submitted in batches, together with a statement listing each cheque and its value. All cheques, irrespective of the region in which they are payable, are accepted for clearing by any regional clearing office, provided that there is a branch of the bank on which the cheque is drawn in the area of the respective clearing office.

#### 3.4.2.5 Transaction processing environment

Both the central clearing office of the ACO and its regional clearing offices are linked to the Bank of Greece's IT Centre.

All clearing offices transmit the net balances electronically to the Bank of Greece's IT Centre. The IT Centre then proceeds to create a concatenated file, which is uploaded to HERMES for settlement. The ACO's automation is limited to its internal applications and communication with the Bank of Greece.

#### 3.4.2.6 Settlement procedures

Settlement of the ACO's clearing balances takes place at 3.45 p.m. CET in HERMES. Upon settlement, all cheques provide same-day value for the paying bank. Partial settlement of the ACO's balances is not permitted.

After settlement, cheques are submitted by the ACO to the banks on which they are drawn. A cheque may not be accepted by the bank on which it is drawn for various reasons (e.g. an insufficient balance on the customer's account). In this case, the cheque will be returned through the ACO to the buying bank until D+1, where D is the settlement date. Returned cheques are settled with the value date of the date of return.

Cheques in foreign currency are accepted for processing in the central clearing office of the ACO only. The ACO clears such cheques in accordance with the paying bank and currency. The settlement of these cheques is effected through correspondent banking relationships.

#### 3.4.2.7 Credit and liquidity risk

According to the ACO's Statute, participants are required to hold sufficient funds in their settlement account during the day.

#### 3.4.2.8 Pricing

The operating expenses of the system are covered by its members and paid on a quarterly basis. The Council of the ACO sets the percentage of the expenses to be charged to each member in accordance with the average

number of transactions presented during the previous quarter. The minimum charge is 1% of the total costs. An entry fee, determined by the Council, is also applied to new members.

### 3.4.3 CLEARING SYSTEM: DIAS SA

#### 3.4.3.1 General overview – sub-systems

Interbanking Systems SA (or DIAS SA), is a private, multilateral netting system for retail payments. The main objective of DIAS SA is to develop and operate advanced interbank payment systems with the primary aim of modernising operations and promoting the use of cashless payment instruments.

DIAS SA is composed of five sub-systems, i.e. DIASCHEQUE, DIASTRANSFER, DIASATM, DIASDEBIT and DIASPAY, each serving a different payments market. After performing the clearing of each sub-system separately, DIAS SA proceeds to the consolidation of the individual net balances. The consolidated net balances are transmitted via file transfer to the Bank of Greece for settlement in the RTGS system HERMES at 4 p.m. CET on a daily basis. Partial settlement of the net balances is not permitted by HERMES.

Participation in DIAS SA is open to credit institutions, which may or may not be shareholders of DIAS SA. The participation of non-shareholding credit institutions is subject to approval by the Board of Directors. Only DIASTRANSFER provides for both direct and indirect participation, the other sub-systems allowing only for direct participation.

The pricing policy for all DIAS sub-systems aims at full cost recovery plus a profit margin. It is based on the profile of participants (shareholders/non-shareholders) and, furthermore, on a fee per transaction which is independent of the volume of payments sent to the DIAS sub-systems.

The individual sub-systems of DIAS SA are as follows:

**DIASCHEQUE** – the interbank cheque clearing system – provides for electronic clearing of cheques in euro (bank drafts and personal cheques) drawn on banks operating in Greece. The submission of cheques by the buying banks to DIAS SA is based on the “cheque truncation” principle. In accordance with this principle, only an electronic file containing data on bought cheques (i.e. bank account number, cheque number, cheque amount and date) – referred to hereafter as a “file of bought cheques” – is forwarded to DIASCHEQUE, whereas the actual cheques are kept with the buying banks.

The sub-system provides for two cut-off times, 3.15 p.m. and 7.30 p.m. CET respectively. Buying banks may submit two files of bought cheques per day. Cheques included in the file of bought cheques submitted to the sub-system prior to the first cut-off time are settled in HERMES with same-day value (D), whereas those included in the file of bought cheques submitted after the first and prior to the second cut-off time are settled in HERMES with next-day value (D+1).

After receiving the files of bought cheques, DIAS SA creates a file for each paying bank – referred to hereafter as a “payment file” – which contains data on cheques drawn on the respective paying banks and submitted on day D. Payment files are transmitted to the paying banks via file transfer by 8.30 p.m. CET. Cheques returned by the paying banks for certain pre-specified reasons must be transmitted to DIAS SA in the form of “rejection files” by 11.30 p.m. CET on day D+1. Rejection files are taken into account in the clearing process for day D+2 and are forwarded by DIAS SA to the respective buying banks by 1.30 a.m. CET on day D+2.

DIASCHEQUE has 31 participants.

**DIASTRANSFER** – the interbank funds transfer system – provides for the electronic clearing of



customer credit transfers in euro among participating banks.

Sending banks forward customers' credit transfers to DIAS SA via file transfer. Two cut-off times have been set by the sub-system, namely 11 a.m. and 3.30 p.m. CET. All credit transfers sent to DIAS SA prior to the second cut-off time are cleared by DIASTRANSFER on the day of submission (D).

After the first and second cut-off times respectively DIAS SA creates a file for each receiving bank containing the respective credit transfers received. These files are then forwarded to the receiving banks from 11.30 a.m. and 4 p.m. CET respectively. Submission of a credit transfer to DIAS SA prior to the first cut-off time facilitates the crediting of the beneficiary's account on day D by the receiving bank.

DIASTRANSFER has 23 participants.

**DIASATM** – the interbank ATM switching system – supports cash withdrawal and balance enquiry transactions at ATMs of credit institutions (referred to as “acquirer banks”) other than those that have issued the cash card used for the transaction (referred to as “issuer banks”).

After the cut-off time (2 p.m. CET) on day D, DIASATM performs the clearing of successful interbank transactions that have taken place within the period from 2 p.m. on day D-1 to 1.59 p.m. CET on day D.

DIASATM has 26 participants.

**DIASDEBIT** – the interbank mass collection system – provides for the electronic clearing of direct debits and ad hoc orders for payment in euro to organisations in the private and public sectors (e.g. public utility companies, pension funds and tax authorities) which accept payment of their customers' obligations via DIASDEBIT. Payments are performed by debiting the customers' bank accounts and crediting the bank accounts of the respective organisations.

DIASDEBIT has 28 participants.

**DIASPAY** – the interbank system for payment of salaries and other payments – provides for the electronic clearing of the payroll payments in euro (e.g. salaries and pensions) of the public and private sector organisations (e.g. ministries, companies and pension funds – “employers”) to their beneficiaries. Payroll transactions are performed by debiting the employers' bank accounts and crediting the respective beneficiaries' bank accounts.

DIASPAY has 25 participants.

## 4 SECURITIES TRADING, CLEARING AND SETTLEMENT

### 4.1 TRADING

#### 4.1.1 THE ATHENS EXCHANGE

##### 4.1.1.1 Institutional and legal aspects

The AE is a regulated market owned by Hellenic Exchanges Holdings SA, which is a joint stock company listed on the Exchange. The AE offers listing and trading of equities, and there are currently 360 companies listed on the Exchange. It also lists a number of bonds.

The AE's governing body is the Board of Administration. Pursuant to Law 1806/1988, as amended, it is composed of 11 members, each appointed for a three-year term. The Minister for Economy and Finance selects five of the members, including the member appointed President (whose appointment also involves a parliamentary hearing). Two Board members represent the members of the AE and the Bank of Greece, and the Chamber of Commerce and Industry and the Institutional Investors Association can each appoint a further member. The Board's responsibilities include administrative functions, company listing and the imposition of sanctions. The Board's range of responsibilities has been widened, mainly by way of Law 3371/2005 of 14 July 2005.

The AE operates under licence and supervision of the Hellenic Capital Market Commission. The AE is a regulated market within the meaning of the Investment Services Directive and is governed primarily by Laws 1806/1988 and 2324/1995, as amended and supplemented, and by Law 3152/2003 and Law 3371/2005 of 14 July 2005. Furthermore, the Athens Exchange, its markets and transactions are also governed by the legislative framework which transposed the capital market-relevant EC directives into Greek law.

The AE has 80 members. Most members are investment services and brokerage firms licensed by the HCMC in accordance with Law 2396/1996 (as amended); only a few members are credit institutions licensed and supervised by the Bank of Greece.

The Exchange has different rules for each of its different market segments, and specific rules apply to its derivatives market. The derivatives market, initially established (by way of Law 2533/1997) as a separate exchange, now constitutes a market segment of the Athens Exchange and is active in the trading of futures contracts. The clearing of derivatives contracts is carried out by a central counterparty (ETESEP or ADECH) that was established by way of Law 2533/97 and incorporated as a *société anonyme*. ETESEP has 12 general clearing members, all of which are EU banks, and 9 of which are Greek banks; its basic operating rules have been established by law and are supervised by the HCMC.

#### **4.1.1.2 Operational aspects**

The AE's operations are governed by its Regulation, which is adopted by its Board and approved by the Hellenic Capital Market Commission. The Regulation currently in force was adopted by HCMC Decision 4/358 of 11 November 2005. Trading hours vary, depending on the market segments and classes of listed company concerned. For the "big cap" class (which corresponds to the largest part of the market's capitalisation) trading hours are 10.30 a.m. to 4 p.m. CET, whereas for the "mid

and small cap" class they are 1 p.m. to 4 p.m. CET. Trades are conducted electronically through the automated exchange trading system. Closing prices for the "big cap" market are calculated in accordance with the call auction method, as per Article 75 of the Exchange's Regulation, or, alternatively, using the weighted average of the last 10% of trades; the latter method is applicable also to the closing prices of the "mid and small cap" class.

The clearing and settlement of all transactions takes place at the Central Securities Depository SA (CSD; described in Section 4.3 below) on a T+3 settlement cycle. The entire registration, clearing and settlement process is dematerialised. A guarantee fund, the Athens Exchange Members Guarantee Fund, has been in operation since its legal establishment in 1954. The Fund is financed and operated by the Exchange and its members and supervised by the HCMC. The Fund's current structure and administration are governed by the provisions of Law 2533/1997, according to which its members are to be compensated in the event of counterparty default, while a supplementary fund, also established by law, is available to cover settlement risk. Membership of and contribution to the Fund is compulsory for all Athens Exchange members and HCMC-licensed investment firms that are not members of the Exchange.

### **4.1.2 ELECTRONIC SECONDARY SECURITIES MARKET**

#### **4.1.2.1 Institutional and legal aspects**

HDAT constitutes an electronic trading system for Greek government securities and is designated a regulated market within the meaning of the Investment Services Directive. Established by Law 2515/97, it began operations in May 1998 and is operated by the Bank of Greece. The trading platform supports secondary and primary market operations. Moreover, all securities in book-entry form issued by public entities and registered in the SSS of the Bank of Greece (BOGS) can also be traded on HDAT.

According to the provisions of Law 2733/99, supervision and control of HDAT is exercised by a seven-member committee appointed by an act of the Governor of the Bank of Greece for a two-year term; this committee comprises representatives appointed both by the Bank of Greece and by HDAT participants. For issues concerning the conduct of primary auctions, the Ministry of Economy and Finance also appoints an additional member. The committee's functions include establishing the operational framework for the market (including decisions on business suspension), initiating investments in and the development of the system, decision-making on data management and availability (including the policy on the publication of data) and, lastly, acting as mediator in disputes arising among participants.

The same legislation appoints the Bank of Greece as manager of the system. In this capacity, the Bank of Greece ensures that:

- the system runs smoothly and in accordance with the standards and regulations specified by the HDAT Supervision and Control Committee;
- HDAT's members are provided with online information on daily transactions;
- the historical database is developed and supported; and
- participants' compliance with their obligations, as stipulated in the Participation Agreement, is supervised and controlled.

As at December 2005 the system had 29 participants, 21 of which acted as primary dealers. These were domestic banks, branches of foreign banks in Greece, foreign institutions (remote access members) and one specialised credit institution. The Primary Dealer Supervision and Control Committee is responsible for assessing all entry applications, as well as the general performance of system participants. The committee members are appointed by the Bank of Greece, the Ministry

of Economy and Finance, primary and non-primary dealers, and the HBA.

#### 4.1.2.2 Operational aspects

HDAT is a quote-driven market in which all dealers, depending on their rights and obligations, can enter quotes. During trading hours (9.15 a.m. to 4 p.m. CET) primary dealers are required to quote continuously binding bid and offer prices, as well as amounts, for a specified list of securities through their terminals. The spread between bid and offer prices may not exceed a certain cap specified by the Primary Dealer Supervision and Control Committee. There are currently three categories of securities depending on their outstanding maturity: a) less than 5 years with a maximum cap of 7 basis points, b) between 5 and 11 years with a maximum cap of 10 basis points, and c) more than 11 years with a maximum cap of 15 basis points. The minimum quantity for a quote is currently 5 lots (1 lot = €1,000,000).

Deals are closed through terminals. All quotes and orders are anonymous. HDAT displays the list of quotes and automatically matches the first relevant order with the best available quote displayed. Orders must have a quantity of at least five lots, and these are automatically accepted. When a trade is executed HDAT automatically generates confirmation of the trade and forwards it to the two contracting parties and to BOGS.

The electronic system guarantees transparency, since all the transaction details binding the parties (price, amount and bid/offer prices) are available in real time to all interested parties. HDAT provides online information to international electronic data providers (e.g. Reuters and Bloomberg).

An electronic liquidity management system enables HDAT participants to control their exposures with regard to their government bond transactions.

The operating hours of HDAT are determined by an act of the Governor of the Bank of Greece

upon the recommendation of the HDAT Supervision and Control Committee. Daily operations are divided into three phases: the pre-market, trading and market-close phases.

## 4.2 CLEARING

The only entity performing clearing house activities in Greece is ETESEP, the central counterparty in the AE derivatives market. ETESEP was established by way of Law 2533/1997 and effects clearing of contracts between the members of the specific derivatives market, while the respective securities settlement is effected at the CSD. ETESEP's 12 general clearing members are all European Union banks. Clearing services for government securities transactions are provided by the securities settlement system operating at the Bank of Greece.

## 4.3 SETTLEMENT

There are two securities settlement systems in the Greek financial market. The Bank of Greece's securities settlement system BOGS settles transactions involving all Greek government debt instruments, while the AE's CSD settles those involving private equities and certain corporate bonds.

### 4.3.1 CENTRAL SECURITIES DEPOSITORY SA

#### 4.3.1.1 Institutional and legal aspects

The Central Securities Depository SA was established in 1991 as a joint stock company, but merged with the Athens Exchange in 2006. The CSD acts as the exclusive depository and SSS for all transactions on the AE.

Dematerialisation on the CSD was introduced by the provisions of Law 2396/1996, as amended (mainly by way of Laws 2533/1997 and 2651/1998), and took effect in the form of a direct holding system. The framework and details of the clearing and settlement processes are governed by the Regulation on the clearing of stock exchange transactions and the operation of the dematerialised securities system, drawn

up and supervised by the HCMC. The CSD is a member of the European Central Securities Depositories Association (ECSDA) and other related associations and has, by law, been appointed as the securities numbering agency in Greece.

#### 4.3.1.2 Operational aspects

All reports on trading instructions are forwarded to the CSD on T+1. The reports cover the transactions of day T, which are analysed on the basis of the price and amount of securities traded, name and code numbers, and the counterparties involved. Following the matching of notifications and the clearing of counterparties' liabilities, settlement is completed on T+3. The settlement model used is DvP2. Cash settlement is effected in commercial bank money, via cash accounts held by participants with a bank appointed by the Athens Exchange on a contractual basis, but it is envisaged that settlement in central bank money will start in the course of 2007.

### 4.3.2 BOGS

#### 4.3.2.1 Institutional and legal aspects

Law 2198/1994 has assigned to the Bank of Greece responsibility for managing the system for monitoring transactions in securities in book-entry form. The operational framework is governed by the system's Regulation, which is enforced by an act of the Governor of the Bank of Greece and can be amended only by such an act.

In BOGS, securities are held on two levels. Participants (intermediaries) hold two separate securities accounts in the system, their own portfolio for their own investment purposes and an investor/customer portfolio account in which all assets of the participant's customers are pooled. Participants are also obligated, pursuant to the applicable Law and regulations, to keep separate records for each individual investor. Pursuant to Article 7(2) of Law 2198/1994, none of the accounts held with the system are subject to seizure or attachment and are therefore separated from the remaining assets

and property of the participants in the event of bankruptcy. In addition, Article 11(2) of Law 2548/97 provides for further protection of BOGS participants – including the Bank of Greece – in the event of the bankruptcy of a counterparty. This legal provision ensures that the ownership rights of BOGS participants, either outright or pledged in favour of a participant in the system, are not affected by such bankruptcy.

Participation in the system is subject to the approval of the manager, pursuant to an act of the Governor of the Bank of Greece. The legal agreement on participation (a form of concession agreement) ensures that the participant recognises and accepts the operating rules and conditions, as well as any other binding liability vis-à-vis the operator and the system's participants.

Since 1998 BOGS has been assessed annually on the basis of the standards applicable to securities settlement systems used in Eurosystem credit operations, since which time it has been found to be fully compliant with these standards and eligible for Eurosystem credit operations.

In the context of the CPSS-IOSCO disclosure framework, a detailed presentation of the system can be accessed on the websites of both the Bank of Greece and the BIS.

#### 4.3.2.2 Operational aspects

Settlement of BOGS transactions is carried out in central bank money, as the cash leg is settled in HERMES via the members' accounts with the Bank of Greece. BOGS' operational framework provides for both real-time gross settlement on an individual basis (DvP Model 1) and settlement in multiple batches (DvP Model 3). Real-time gross settlement applies to all monetary and intraday liquidity operations of the Eurosystem and, following the June 2005 modifications to the system's infrastructure and regulation, also to commercial transactions. Within this framework, finality is ensured upon settlement in HERMES. In terms of the value of transactions, more than 85% is

settled on a real-time gross settlement basis. BOGS also provides full matching and clearing services when instructed by participants.

BOGS acts as the SSS for transactions executed on the government securities secondary market HDAT. The settlement cycle for these transactions is T+3, applicable to both the primary and the secondary markets. For all other OTC transactions, final settlement is achieved on the value date indicated in the counterparties' notifications.

If, in a batch procedure, a settlement transaction fails on account of a lack of securities or funds, the instruction is pending and is reintroduced at each subsequent cycle until it can be finalised. This pending queuing system is maintained until the final settlement cycle at the end of the day. This cycle serves as a first risk management mechanism, since all unsettled instructions from the preceding cycles are reintroduced in this final cycle, which operates on a multilateral netting basis.

The system, which is located on the premises of the Bank of Greece, benefits from a highly secure structure. At the same time, its reliance on recently updated technology requires operational continuity in the event of a disaster. This is achieved through the maintenance of a real-time standby function at a secondary site.

BOGS does not use the services of an external depository for any securities settled in its books. At present there are no links with other SSSs/CSDs. International CSDs may participate as customers via custodian banks, the latter being direct members of the system.

The system follows the operating time regime of TARGET and receives instructions between 9 a.m. and 3.30 p.m. CET. Where necessary, these operating hours can be extended, either at the request of participants or in the context of Eurosystem credit operations.







# SPAIN

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## LIST OF ABBREVIATIONS

AIAF	Association of Securities Dealers – <i>Asociación de Intermediarios de Activos Financieros</i>
BME	Spanish Stock Exchanges and Markets – <i>Bolsas y Mercados Españoles</i>
BOE	Official Spanish Gazette – <i>Boletín Oficial del Estado</i>
CADE	Spanish Public Debt Book-Entry System – <i>Central de Anotaciones del Mercado de Deuda Pública en Anotaciones</i>
CECA	Spanish Confederation of Savings Banks – <i>Confederación Española de Cajas de Ahorro</i>
CNMV	National Securities Markets Commission – <i>Comisión Nacional del Mercado de Valores</i>
Iberclear	Society for the management of the systems for the registration, clearing and settlement of securities – <i>Sociedad de Gestión de los Sistemas de Registro, Compensación y Liquidación de Valores</i>
Iberpay	Commercial name of the Spanish Payment Systems Society (see SESP)
LATIBEX	Market in euro for Latin American securities – <i>Mercado para valores latinoamericanos en euros</i>
MAB	Alternative Stock Exchange – <i>Mercado Alternativo Bursátil</i>
MEFFCLEAR	Spanish central counterparty for debt securities – <i>Entidad de contrapartida central española para los valores de deuda</i>
MEFF RF	Spanish Futures and Options Market (fixed income) – <i>Mercado Español de Futuros Financieros (renta fija)</i>
MEFF RV	Spanish Futures and Options Market (equities) – <i>Mercado Español de Futuros Financieros (renta variable)</i>
MEFF SA	Spanish Futures and Options Market SA – <i>Mercado Español de Futuros Financieros, Sociedad Anónima</i>
MFAO	Market for olive oil futures – <i>Mercado de Futuros del Aceite de Oliva</i>
RENADE	Spanish registry of greenhouse gas emission allowances – <i>El Registro Nacional de Asignación de Derechos de Emisión</i>

SCL Barcelona	Clearing and Settlement Service of the Barcelona Stock Exchange – <i>Servicio de Compensación y Liquidación de la Bolsa de Valores de Barcelona</i>
SCL Bilbao	Clearing and Settlement Service of the Bilbao Stock Exchange – <i>Servicio de Compensación y Liquidación de la Bolsa de Valores de Bilbao</i>
SCL Valencia	Clearing and Settlement Service of the Valencia Stock Exchange – <i>Servicio de Compensación y Liquidación de la Bolsa de Valores de Valencia</i>
SCLV	Securities Clearing and Settlement Service – <i>Servicio de Compensación y Liquidación de Valores</i>
SENAF	Fixed Income Electronic Trading System – <i>Sistema Electrónico de Negociación de Activos Financieros</i>
SESP	Spanish Payment Systems Society (see Iberpay) – <i>Sociedad Española de Sistemas de Pago</i>
SIBE	Spanish Stock Market Interlinking System – <i>Sistema de Interconexión Bursátil Español</i>
SLBE	Banco de España Settlement Service – <i>Servicio de Liquidación del Banco de España</i>
SNCE	National Electronic Clearing System – <i>Sistema Nacional de Compensación Electrónica</i>
SON	Multilateral Trading Facilities – <i>Sistema Organizado de Negociación</i>
SPI	Spanish Interbank Payment Service – <i>Servicio Español de Pagos Interbancarios</i>

## INTRODUCTION

Spanish payment systems have recently undergone a process of reform that has led to a significant reconstruction of these systems. One of the consequences of this reform has been the disappearance of the Spanish Interbank Payment Service (Servicio Español de Pagos Interbancarios; SPI)<sup>1</sup>. Thus, only two payment systems coexist in Spain: the Banco de España Settlement Service (Servicio de Liquidación del Banco de España; SLBE) for the processing of large-value payments, and the National Electronic Clearing System (Sistema Nacional de Compensación Electrónica; SNCE) for retail payments.

The SLBE, created and managed by the Banco de España, started operations in 1996 and is the Spanish RTGS system connected to TARGET. Besides settling cross-border transfers, it also settles domestic transfers and payments stemming from market operations and multilateral net systems.

The SNCE was created by the credit institutions and the Banco de España. Originally, it was managed by the central bank, but the reform has led to the transfer of those competences to the Spanish Payment Systems Society (SESP SA), known as Iberpay, which is a private company owned by the credit institutions participating in the system. Nevertheless, the Banco de España is still responsible for approving the rules of the system and, of course, its oversight. The SNCE clears low-value payment instruments which the participants exchange bilaterally, settling their final positions on their accounts at the Banco de España.

Direct debits and payment cards are the payment instruments most commonly used by consumers. Cheques, which used to be the leading form of payment instrument, are practically the least used instrument nowadays. In terms of value, credit transfers are the main form of payment instrument, while payment cards have the lowest average value per transaction. The shift in the means of communication used by

customers has continued, promoted by the credit institutions themselves, and the use of the internet instead of paper or magnetic media to initiate financial transactions has increased significantly.

Payment systems oversight is a task explicitly conferred on the Banco de España under Spanish law. The central bank's competences in this area have recently been reinforced with the modification of what is known as the Autonomy Law.<sup>2</sup>

As for the securities settlement industry, there have been significant developments over the past few years, both in institutional and in operational terms.

With regard to institutional developments, the holding company Bolsas y Mercados Españoles (BME) was created in 2003. It integrates most securities markets and all securities clearing and settlement systems in Spain. The group comprises the Madrid, Barcelona, Bilbao and Valencia Stock Exchanges (including the local settlement systems of the last three exchanges), MF Mercados Financieros (the MEFF, AIAF, SENAF and MEFFCLEAR platforms), Iberclear (the securities registration, depository, clearing and settlement institution) and BME Consulting. As a result of this integration process and the subsequent demutualisation, BME was first listed on 14 July 2006.

As for operational changes, it is worth mentioning that corporate bonds and government debt are now processed on the same settlement platform and that central counterparty services have been extended to transactions not involving derivatives (MEFFCLEAR).

<sup>1</sup> The SPI ceased its operations in December 2004. It was a net settlement system which cleared and settled large-value payments in euro, both national and cross-border. Operations were settled by their end-of-day net balance in the accounts held by participants at the Banco de España. The transactions that used to be processed by this system have been channelled, according to their typology or amount, through the SLBE or through the SNCE.

<sup>2</sup> Law 13/1994 of 1 June, called the Autonomy Law of the Banco de España (*Ley de Autonomía del Banco de España*).

In addition to the markets integrated in BME, the company MTS España also operates a regulated market for Spanish public debt. MTS España began operations in May 2002 and settles operations via Iberclear.

As for securities settlement systems (SSSs), Spanish law establishes the requirements which these must meet in order to be recognised as designated systems governed by the European Settlement Finality Directive. This Directive was transposed into Spanish law by way of Law 41/1999. All of these systems were assessed as being eligible for use in the Eurosystem's credit operations and meeting the ESCB's standards.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The most important aspects of the payment and settlement systems were regulated through the enactment of Law 41/1999 – as referred to above – of 12 November on payment and securities settlement systems, also known as the Settlement Finality Law. This important measure transposes, inter alia, Directive 98/26/EC of the European Parliament and of the Council on settlement finality in payment and securities settlement systems into Spanish law.

Furthermore, Law 41/1999 on settlement finality defines the criteria which payment and securities settlement systems must meet in order to be legally recognised as such under Spanish law, as well as the complete legal regime with which they must comply. It specifically mentions the payment and securities settlement systems which, according to this Law, are officially recognised in Spain. Currently, the systems listed in the Law are as follows:

- the SLBE;
- the SNCE;
- SCLV and the regional SSSs, i.e. the securities clearing and settlement systems of the different Spanish stock exchanges which were recently integrated into the holding company BME;
- CADE and SCLV-AIAF, also integrated into BME and managed under the same platform; and
- the clearing and settlement systems of the derivatives markets managed by MEFF SA, which is also a subsidiary of BME.

In accordance with the Settlement Finality Law, the overseers of the payment and securities settlement systems are the Banco de España

and the National Securities Markets Commission (Comisión Nacional del Mercado de Valores; CNMV).

Another important piece of legislation in the field of payment and settlement systems is Law 44/2002 on measures for the reform of the financial system. Among other measures, this Law transposes into Spanish law Directive 2000/46/EC, which regulates electronic money institutions and their supervision.

#### I.1.1 THE REGULATION OF PAYMENT SETTLEMENT SYSTEMS

The main law governing payment settlement systems is the above-mentioned Law 41/1999 of 12 November on payment and securities settlement systems. In addition, each system has its own internal regulations, which must comply with Law 41/1999.

The Banco de España determines the internal regulations of the SLBE. These rules are published in the form of circulars, technical applications, etc. issued by the Banco de España and addressed to the member credit institutions. The Manual of the SLBE consists of all of these norms taken together. Circular 3/2000 of 31 May, which adapts the functioning of the SLBE to the rules established in Law 41/1999, is of particular significance in this regard.

The SNCE was created by Royal Decree 1369/1987 of 18 September and the Ministerial Order of 29 February 1988, which regulated the creation of the system. Since the system has been transferred to Iberpay in the context of the reform of the Spanish payment systems (see Introduction), this society is now responsible for the elaboration of the internal regulations of the system. Consequently, its internal operating rules are currently determined by Iberpay's Regulation on the National Electronic Clearing System, which came into effect on 15 March 2007, replacing Banco de España Circular 8/1988 of 14 June. A number of internal rules issued by the Banco de España as former manager of the system have also been replaced by new ones issued by Iberpay; others are still



applicable, but will progressively be phased out.

### 1.1.2 THE REGULATION OF SECURITIES SETTLEMENT SYSTEMS

All activities related to the Spanish securities markets are regulated by Law 24/1988 of 28 July on the securities market. This Law establishes the general principles to be observed in the organisation and operation of the primary and secondary securities markets, as well as the basic rules governing the activity of individuals and institutions participating in those markets and their control and supervision.

This Law has been developed in various provisions issued by the central government (royal decrees) and the Ministry of Economy and Finance (orders), as well as in other provisions of lower rank issued by the CNMV and the Banco de España (circulars). Specific operational and organisational rules for each securities market have – subject to the general provisions – been issued by the respective market-governing companies or institutions (rules and regulations). In addition, some regional governments with powers in this field have the competence to issue provisions (decrees and orders) in respect of regional markets authorised by them.

Law 24/1988 of 28 July applies to all SSSs, which, since 2003, have been part of BME, the Spanish Stock Exchange and Markets group. This Law has been modified by several other laws, of which the following have been particularly relevant in recent years:

Law 37/1998 of 16 November on the reform of the securities markets incorporates Council Directive 93/22/EEC into Spanish legislation, and Directive 95/26/EC regarding investment services in the field of traded securities. It is worth pointing out two aspects of this reform: first, with regard to secondary markets, it establishes the rules on access to membership, regulates the lending facilities and amends the operational regime; second, the new provisions governing financial intermediaries reorganise

the types of entity participating in the markets and establish the regime governing them.

Law 37/1998 was the first law to regulate the investment guarantee funds (IGFs), as required by Directive 97/9/EC on investor compensation schemes, so that no investment firm authorised in any EU Member State can conduct investment business unless it belongs to such a scheme. IGFs ensure that investors are covered in the event of insolvency or where investment services firms (ISFs) are for any other reason unable to meet their obligations to investors. They are similar to the deposit guarantee funds of credit institutions. Law 37/1998 also makes certain amendments to Royal Legislative Decree 18/1982 of 24 September on the deposit guarantee funds of credit institutions, in order to afford protection to investors which have entrusted money, securities or other financial instruments to them for the provision of an investment service. Royal Decree 948/2001 of 3 August implemented investor compensation schemes, both for ISFs and for credit institutions.

Law 44/2002 of 22 November on measures to reform the financial system, in addition to transposing a number of EC directives not directly related to the securities market into Spanish law, also aims to promote efficiency in this sector. Before its implementation, securities clearing and settlement services in Spain were provided by a wide range of institutions. To resolve this situation, the Law put in place a flexible and open legal system in order to enable the existing clearing and settlement systems to be integrated, providing for the creation of the Sociedad de Gestión de los Sistemas de Registro, Compensación y Liquidación de Valores (Securities Registration, Clearing and Settlement Systems Management Company; referred to hereafter by its commercial name “Iberclear”) through a merger of SCLV and CADE.

To facilitate integration, the clearing and settlement systems were to be demutualised, as was the case with the stock exchange

management companies under Law 14/2000 of 29 December 2000 on fiscal, administrative and social measures. This enables non-market participants to have a stake in the capital of these systems.

Law 44/2002 also provides for the creation of one or more central counterparties, which eliminate counterparty risk in transactions by interposing themselves between the buyer and the seller. Prior to this reform, such an arrangement was only used for derivatives.

The Law also modifies the regulation of cross holdings between firms that administer secondary markets and their counterparts abroad, making it more flexible in order to facilitate the cross-border integration of markets, while ensuring some control over the suitability of Spanish market shareholders. In addition, companies that administer Spanish secondary markets (exchanges) are authorised to have holdings in similar companies in other countries, with the prior authorisation of the CNMV.

Further, in the field of securities market regulations, Law 44/2002 transposes into Spanish law Directive 2000/64/EC, which amends a number of other directives relating to the exchange of information in the field of insurance, securities and collective investment undertakings.

Although Law 24/1988 has a general purpose, there are specific laws which regulate particularly relevant aspects in greater detail, such as Law 2/1981 of 25 March on the mortgage market (which refers to securitisation of mortgage claims); Law 19/1992 of 7 July on asset securitisation (except territorial certificates, which are regulated by Law 44/2002); Law 35/2003 of 4 November on collective investment undertakings; and Law 25/2005 of 24 November, which regulates venture capital entities and their management companies.

The set of laws, rules and regulations relating to financial institutions must also be taken into account, considering their important role in the field of securities markets (see Section 1.1.3).

The derivatives markets managed by MEFF SA are governed by Royal Decree 1814/1991 and by the internal MEFF SA rules approved by the CNMV.

### 1.1.3 OTHER LEGAL RULES

Law 41/1999 provides that the disciplinary regime applicable to the members of payment and securities settlement systems supervised by the Banco de España is Law 26/1988 of 28 July on discipline and intervention of credit institutions (Ley de Disciplina e Intervención de las Entidades de Crédito). This same Law applies to the payment and settlement systems with respect to infringements related to the oversight of the systems. With regard to the SSSs supervised by the CNMV, the disciplinary regime is that laid down in Law 24/1988 of 28 July on securities markets.

Another piece of legislation which is of key relevance for Spanish payment and securities settlement systems is the set of laws and regulations on credit institutions. Law 1/1946 on the banking system (Ley de Ordenación Bancaria), the provisions of which have largely been redrafted or repealed, is still partially applicable. This legislation was brought into line with EC regulations by means of Legislative Royal Decree 1298/1986 of 28 June. The creation of new banks in Spain and the entry of foreign credit institutions are governed by Law 3/1994 of 14 April and Royal Decree 1245/1995 of 14 July. The latter regulations adapt Spanish legislation on credit institutions to meet the requirements of the Second Banking Coordination Directive (as amended by Directive 2000/12/EC), allowing the free establishment of EEA credit institutions in Spain. Law 6/2005 of 22 April on the reorganisation and winding up of credit institutions incorporates the provisions of Directive 2001/24/EC into Spanish law.

With respect to investment services firms (securities dealer companies, securities agencies and portfolio management companies), Law 37/1998 (which amended Securities Market Law 24/1988 and transposed Directive 95/26/EC into Spanish law – see Section 1.1.2) was implemented by means of Royal Decree 867/2001 of 20 July 2001 on the legal regime for investment services firms. It repeals Royal Decree 276/1989 of 22 March 1989 on securities dealer companies and securities agencies, as well as Title IV of Royal Decree 1393/1990 governing portfolio management companies.

Antitrust Law (Ley de Defensa de la Competencia) 16/1989 of 17 July, as amended by several subsequent laws (in particular Law 52/1999 of 28 December), is also applicable to payment and settlement systems and prohibits any abuse of a dominant position and any agreements which restrict competition.

As regards customer protection, Law 44/2002, referred to above, regulates a number of administrative bodies entrusted with the function of protecting financial services customers. These bodies are as follows: the Commissioner for the Protection of Bank Customers (attached to the Banco de España); the Commissioner for the Protection of Investors (attached to the CNMV); and the Commissioner for the Protection of Insurance Policyholders and Pension Scheme Participants (attached to the Directorate General for Insurance and Pension Funds). The aim of these bodies is to protect the rights of financial service users in their relevant area. The Law requires financial institutions to have a customer care department or service. In addition, they may appoint an ombudsman, who is to be an independent entity or expert responsible for resolving claims. On the basis of the authority granted to the government in the new Law, further legislation has been enacted: Royal Decree 303/2004 of 20 February, which approves the Regulations for the protection of financial services customers, and Order Eco/734/2004 of 11 March on customer service departments and the ombudsman for financial institutions. The

customer protection rules and the transparency of their transactions were already guaranteed by way of Law 26/1988 of 28 July on the discipline and intervention of credit institutions. These provisions, which concern customer rights, were further detailed in Ministerial Order 31/1989 and Banco de España Circular 8/1990 of 7 September. As for transparency in the securities markets, Law 24/1988 contains the basic regulation, whose rules of conduct for the institutions that operate in the securities market were tightened by Law 44/2002.

Royal Decree-Law 5/2005 of 11 March on urgent reforms to promote productivity and improve public sector procurement inter alia transposes into Spanish law the provisions of Directive 2002/47/EC on financial collateral arrangements.

Another relevant piece of legislation in this area is Law 19/1993 of 28 December 1993 on certain measures to prevent money laundering, as amended by Law 19/2003 of 4 July 2003 on the legal regime governing capital movements and cross-border economic transactions and on certain measures to prevent money laundering.

## 1.2 THE ROLE OF THE BANCO DE ESPAÑA

The main tasks of the Banco de España are defined in Law 13/1994 of 1 June, the Autonomy Law of the Banco de España. The Autonomy Law defines the Banco de España as a government institution subject to public law, which, although reporting to the government in general terms, enjoys full autonomy as far as monetary policy is concerned, with price stability as its main objective. The Autonomy Law was adapted in view of Spain's participation in Stage Three of EMU by way of a reform of the Autonomy Law (Law 12/1998 of 28 April). The aim of this reform was the full integration of the Banco de España into the ESCB and the recognition of the authority of the ECB in the field of monetary policy, given Spain's integration into the euro area. More recent laws have also amended the Autonomy Law, such as

Law 2/2004 of December 27 and Royal Decree-Law 5/2005 of 11 March.

Other fundamental legislative measures which define the nature, purposes and functions of the Banco de España are the Banking System Law (Ley de Ordenación Bancaria) of 31 December 1946, Decree-Law 18/1962 of 7 June on the nationalisation and reorganisation of the Banco de España, and Law 26/1988 of 29 July on the discipline and intervention of credit institutions (Ley de Disciplina e Intervención de Entidades de Crédito).

With regard to payment and securities settlement systems, the Autonomy Law states that the Banco de España must promote the sound functioning and stability of the financial system as a whole and, in particular, of payment systems.

Law 2/2004 makes more explicit the role of the Banco de España in the field of payment and settlement systems. In this respect, the newly drafted Article 16 of the Autonomy Law states that in order to promote the smooth functioning of payment systems, and in its capacity as an ESCB member, the Banco de España is empowered to regulate payment and settlement systems, in particular with a view to complementing or developing any regulation in this field issued by the ECB or to incorporating recommendations of international bodies aimed at ensuring the safety and efficiency of payment systems. The Banco de España is also authorised to directly manage payment systems.

The new wording of Article 16 of the Autonomy Law also mentions explicitly that the Banco de España is entrusted with the oversight of payment systems. To this end, the Banco de España is empowered to obtain the necessary information from payment systems and payment system providers. The oversight of payment systems applies mainly to the SLBE and the SNCE (while also covering other payment arrangements, such as payment card networks or large correspondent agreements, as well as the safety and efficiency of payment

instruments). In order to make its role in the field of payment systems oversight more transparent, the Banco de España has published a report entitled “The Banco de España and the oversight of payment systems”, which was approved by the Executive Commission in January 2005. The report was originally published in the “Financial Stability Review” in May 2005 and is available (in both English and Spanish) in the payment systems section of the Banco de España’s website.

Law 41/1999 establishes the general membership requirements for and operating rules of the different payment and securities settlement systems to be designated and protected under this Law; these requirements and rules must be approved by the Banco de España (or the CNMV in the case of securities markets). On the other hand, for a payment or securities settlement system to be legally recognised, the government must issue a resolution of approval. This decision is taken on the basis of a report issued by the Banco de España and addressed to the government.

The Banco de España (or the CNMV in the case of securities markets) is responsible for reporting to the European Commission on the various payment and securities settlement systems which comply with the requirements laid down in Law 41/1999.

### 1.2.2 OPERATIONAL ROLE

As owner and manager of the SLBE, the Spanish RTGS system integrated into TARGET, the Banco de España also plays an operational role in payment systems. However, since the reform of the Spanish payment systems infrastructure (see Introduction), the central bank is no longer responsible for managing the SNCE, although it still has the final say as regards the approval of the system’s rules and is the overseer of the system.

### 1.2.3 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS

The main responsibilities of the Banco de España in the securities settlement field are those connected with its role as provider of cash settlement facilities to all of the Spanish settlement systems. These must, by law, settle payments derived from securities transactions through cash accounts held by participants with the Banco de España.

### 1.2.4 COOPERATION WITH OTHER INSTITUTIONS

A further function assigned to the Banco de España under the Autonomy Law is banking supervision. In order to better coordinate the oversight of payment systems and banking supervision, the Banco de España has signed a memorandum of understanding at the European level to promote the efficient cooperation and exchange of information between the two functions, which, in the case of Spain, are the responsibility of the same institution. Along the same lines, the Banco de España has signed a similar memorandum, adopted by national central banks and banking supervisors, on acting jointly in crisis situations.

## 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

### 1.3.1 THE NATIONAL SECURITIES MARKETS COMMISSION

The CNMV is a public law institution created under the Law on securities markets (Law 24/1988 of 28 July). This Commission is in charge of the supervision and oversight of the securities markets and of the activity of individuals and institutions participating in such markets. All SSSs are supervised by the CNMV.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

For a number of historical reasons – with tradition appearing to be an important factor – Spanish customers still have a preference for

cash payments. Not even plastic cards have affected this trend, since the existence of a widespread ATM network (Spain has one of the highest number of ATMs per capita in the entire EU) permits fast cash withdrawals.

## 2.2 NON-CASH PAYMENTS

Non-cash payments are based on transferable deposits, which include current accounts and savings accounts. Credit institutions are free to set the interest rates which they pay on these accounts, provided that they inform both the Banco de España and their customers in a timely manner. This approach reflects the Banco de España's commitment to consumer protection, covering several issues from the provision of information to the resolution of conflicts through its Complaints Service.

Non-cash payments can be processed through organised payment systems or cleared within the credit institutions. In Spain, this internal clearing is fairly important, and is used to settle a significant percentage of the total number of low-value payments. The remaining retail payments are processed mainly through the SNCE, the Spanish retail payment system, with the exception of the net amounts resulting from the clearing of transactions carried out with payment cards, which are settled in the SLBE.

Over the last few years, the use of cheques relative to the use of other payment instruments has continued to decline in Spain. Credit transfers, direct debits and, to a larger extent, debit and credit cards have contributed to this significant decline. In terms of volume, direct debits take the lead (46%), followed by debit and credit cards (31%), credit transfers (16%) and cheques (4%). In terms of value, the most important payment instrument is the credit transfer (76%), followed by direct debits (10%), cheques (9%) and debit and credit cards (0.7%).<sup>3</sup>

<sup>3</sup> Percentages of the sum, in terms of volume and value, of transactions processed through the SNCE and via internal clearing and of customer payments processed through the SLBE and the EBA's payment systems.

### 2.2.1 CREDIT TRANSFERS

Both the public and private sectors use this payment instrument for paying labour-related liabilities, i.e. wages, subsidies and pensions. Since 1992 all transfers processed through the SNCE have been communicated and cleared in a fully automated manner (see Section 3).

Owing to the increasing importance of information technology in the field of banking business – and the possibilities which it affords for realising economies of scale – most credit institutions have been providing customers with alternative means of communicating their transactions.

### 2.2.2 CHEQUES

Cheques have lost some of their importance in the Spanish economy and are being replaced by credit transfers, direct debits and payment cards (both credit and debit).

However, cheques (which, in terms of value, accounted for some 9% of total cashless instruments used in 2006) are still relatively important, owing to ingrained customer habits and their cost-transfer effect, i.e. the beneficiary bears the corresponding charges when presenting the cheque to its credit institution. It should also be noted that both cheques and bills of exchange imply a very strong legal obligation.

### 2.2.3 DIRECT DEBITS

As the most significant payment instrument in terms of volume, direct debits are progressively being used for all manner of public utility services (telephone, water, electricity, etc.). Given the nature of the related obligations, the average amounts are relatively small. Indeed, in terms of value, they are not very significant as compared with other cashless payments.

A direct debit order is issued in a standardised way by the creditor, which has previously been authorised by the debtor to charge the account. Sometimes, before the amount is charged to the payer's account, the payer is sent an advance notification, which provides an opportunity to challenge an incorrect payment.

### 2.2.4 PAYMENT CARDS

Issuers of bank cards in Spain are linked to one of the three local card processors currently in existence. These three companies (ServiRed, Sistema 4B and Euro 6000<sup>4</sup>) are in charge of managing their respective acceptance networks, and it is through a number of bilateral agreements between these companies that full interoperability between the three schemes has finally been ensured. Settlement between the three networks used to be performed via the SNCE, but since January 2005 it has taken place through the SLBE, as is the case for any other ancillary system.

Both principal types of payment card, i.e. credit and debit cards, have gained a substantial market share as compared with other cashless retail payment instruments. During 2006 the volume of card-initiated transactions accounted for more than 30% of all cashless payments in Spain.

ATMs and EFTPOS terminals are far more widely used nowadays than they were a few years ago. Figures for 2006 show that, over the year, approximately 13.63 cash withdrawals per card were made at ATMs, and 23 transactions were made per card at EFTPOS terminals. However, it should be noted that the number of transactions per card is declining slightly at ATMs, while rising at EFTPOS terminals, which could be an indicator of the increasing use of cashless payment instruments. The average value of transactions in 2006 was €51.97 at EFTPOS terminals and €107.73 at ATMs.

The use of debit and credit cards is not regulated; thus, it is up to issuers to establish the conditions applicable to cardholders and retailers when signing a service agreement.

#### *Debit cards*

These payment cards issued by credit institutions allow their customers to have the amounts in

<sup>4</sup> Euro 6000 is a brand of debit and credit card. These cards are issued by some of the Spanish savings banks belonging to CECA.



question directly debited from their current accounts. They can be used at ATMs and for EFTPOS transactions. In the latter case, as with credit cards, retailers receive the proceeds of sales by debit card on their current account on the following day, and their bank, in turn, deducts a percentage of the sales turnover paid by cardholders. Though traditionally free of charge, almost all debit cards now bear a relatively low fixed commission on their issuance and renewal.

Debit cards are still more common than credit cards, although the difference in number is not as significant as in the past. Figures for 2006 showed that there were approximately 706 debit cards for every 1,000 inhabitants.

#### *Credit cards, travel and entertainment cards*

Credit cards are nowadays marketed under various internationally recognised brands such as Visa, MasterCard, American Express or Diners Club. As with debit cards, a (higher) annual fee is charged for credit cards, which is borne by the holder.

Cardholders often enjoy additional benefits, such as life/travel insurance and travel assistance services.

As with debit cards, virtually every single transaction with a credit card takes place electronically, with no recourse to manual intervention, and, furthermore, in an online mode that ensures very low levels of fraud.

#### *Retailer cards*

Retailer cards are typically issued by department stores and can therefore only be used for purchases in the issuer's store or in a chain of stores (or in shops with which a bilateral arrangement exists). It is advantageous for issuers that these cards allow cashless payments, as it makes them less dependent on high levels of liquid assets in cash form. These cards are normally free of charge; some of them also provide additional benefits, such as the ability to pay for goods and services in several instalments at no extra cost or to accumulate

points which are exchangeable for goods or services sold in the issuer's store. Hence these cards are intended as a means of encouraging customer loyalty, increasing the number of customers and, consequently, boosting sales.

#### *Prepaid cards*

Two different multi-purpose prepaid card schemes are currently in operation in Spain under the aegis of the previously existing payment card network providers: Monedero 4B and Euro 6000. A third scheme, Visa Cash, ceased to operate in 2005.

Prepaid cards offer a reloadable electronic purse product, issued by a credit institution, which is supposed to replace banknotes and coins in the case of low-value payments. However, these cards are not widely used: only 988,033 operations, with a total value of €1.84 million, were recorded in 2005, which explains the reduction in the number of accepting terminals.

Loading a card involves an online procedure which is initiated by the holder in ATMs specifically designed for this purpose. By contrast, purchases occur offline, without recourse to a PIN or authorisation by the issuer. Money stored on prepaid cards is subject to compulsory minimum reserve requirements, since it is legally defined as repayable funds by Royal Decree 1245/1995 of 14 July. Similarly, the Spanish deposit guarantee scheme also extends to this type of card, covering an amount up to €20,000.

Single-purpose prepaid card schemes are mainly limited to universities and enterprises, as well as to the telephone cards issued by Spain's leading telecommunications company, which permit national and international calls to be made from public telephone booths.

#### *ATM and POS networks*

Three networks have been operating in Spain since the 1970s: Servired, Sistema 4B and Euro 6000. Virtually all credit institutions are linked to one of these networks, be they a savings bank or another type of credit institution.



These networks are fully interoperable, meaning that any card issued by a credit institution linked to one of the schemes can be used at any ATM or POS, regardless of the scheme's provider.

The large number of ATMs and POS, attributable in part to the extensive network of bank branches, has been increasing steadily in the last few years, and Spain continues to have one of the largest networks in Europe. (In 2006 Spain had 1,307 ATMs and 30,091 POS per million inhabitants, one of the highest proportions in the EU.)

Spanish-issued debit cards can also be used internationally as a result of various agreements with other international network providers (particularly in Europe), as is the case with Sistema 4B in Portugal, Andorra, Italy, the United Kingdom and Belgium. Trademarks such as Visa, American Express or Diners Club are internationally recognised, and Euro 6000 cards are compatible with ATMs belonging to members of EUFISERV (European Savings Banks Financial Services Company). In the case of credit cards, the fact of being co-branded implies that they can be used worldwide.

#### 2.2.5 POSTAL INSTRUMENTS

The use of postal instruments in Spain is negligible. Furthermore, the Spanish Post Office, though still a public enterprise, does not have credit institution status. Thus, the Post Office cannot directly provide any payment instrument-related services; this can only be done by a credit institution which offers its services through the Post Office. Clearing and settlement is therefore performed by the relevant credit institution, in the manner explained above.

### 2.3 RECENT DEVELOPMENTS

All credit institutions are working on the implementation of EMV.

Mobile banking (m-banking) continues to grow, with a whole new range of services to be

announced over the short to medium term. M-banking is also being implemented through several agreements reached between the country's main credit institutions and telecommunications operators. Although these are for low-value transactions, no limits on the amounts have as yet been set.

Other initiatives are slowly catching up in the Spanish retail payment market, such as the extensive application of ATM devices as cash dispensing centres for a section of the population that currently remains unbanked.

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

Since the reform (see Introduction), the payment system sector in Spain has been structured around two payment systems: the SLBE for large-value payments, and the SNCE for retail payments. The aforementioned reform clearly distinguishes the types of payment that may be channelled into each of the systems. Cheques and credit transfers over €50,000 must be settled in the SLBE. Credit transfers below this threshold can also be settled in the SLBE, but normally they are processed in the SNCE. Apart from the interbank payments processed by these systems, there are many other payments processed internally in the same institution or group of institutions, as stated in Section 2.2.

Both systems are designated payment systems under the provisions of Law 41/1999, which transposes the Settlement Finality Directive into Spanish law.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: BANCO DE ESPAÑA SETTLEMENT SERVICE

The SLBE is the Spanish RTGS system connected to TARGET. It has been in operation since 1996.

The system was developed by the Banco de España, which also acts as the operator and overseer of the system. Most of the credit institutions in the Spanish financial system are direct participants in the SLBE. It settles domestic and cross-border transfers, secondary market transactions, multilateral net systems and monetary policy operations. Besides these, cheques and credit transfers with values above €50,000 that are submitted to the SNCE are transmitted to the SLBE, which settles them on a gross basis in real time; in the latter system, such operations are referred to as operaciones bilaterales (bilateral operations). The SLBE also settles the net balances that arise from the clearing of operations carried out with payment cards; these net balances are calculated and communicated to the Banco de España by the three card networks. The SLBE also offers additional services, such as the matching, registering and procurement of market transaction statistics.

Through the SLBE, the participating institutions can manage the liquidity of all their accounts held at the different branches of the Banco de España. The participants can initiate money transfers between those accounts depending on their liquidity needs, with the purpose of keeping all of the liquidity available in the RTGS account.

### 3.2.1 OPERATING RULES

The system's rules are laid down in the circulars and technical applications issued by the Banco de España, which are contractually binding on participants. These contracts and the obligation to open an RTGS account in the SLBE books are the main preconditions for participation in the system.

### 3.2.2 PARTICIPATION

The SLBE system is open to credit institutions that are based in the EEA and are subject to prudential supervision in accordance with Directive 2000/12/EC on banking coordination. Furthermore, investment companies subject to the same criteria (Council Directive 93/22/EEC), treasury institutions (and their equivalents at

the regional level) and clearing houses may also participate in the system.

Remote access to the SLBE may also be granted to credit institutions with a permanent base in any EEA country.

In December 2006 there were 179 direct participants in the SLBE, 30 of which were branches (subsidiaries) of foreign credit institutions, of which 25 were from EU countries.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The SLBE settles the large-value payments of its participants, both on their own behalf and on behalf of their customers.

In terms of value, the main financial transactions settled in the SLBE are the cash leg of transactions relating to public debt registered in CADE and the cross-border credit transfers channelled through the national Interlinking component. These are followed by transfers relating to money market operations and domestic credit transfers. Next in importance are the operations above €50,000 that are sent from the SNCE to the SLBE for settlement (bilateral operations). In addition, there are multilateral net systems which settle their net balances in the SLBE (stock exchanges, SNCE settlement, derivatives, card networks, etc.).

In terms of volume, the most numerous are the bilateral operations, followed by domestic and cross-border transfers, operations related to the cash leg of transactions relating to public debt and, finally, the operations related to the final settlement of the ancillary systems that settle in the SLBE.

Transactions on behalf of the Banco de España are also processed and settled in the SLBE, given that the Banco de España is also a normal participant in the system.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The entry of payment orders into the SLBE can be performed through the SWIFT network or by

means of a single-purpose terminal workstation with an online connection to the Banco de España computer. In both cases, the participants may choose between the transmission of files (batches of payments) or the manual entering of payments on a transaction-by-transaction basis. Where the SWIFT network is used, SWIFT guarantees the necessary security measures (authentication, confidentiality, integrity and non-repudiation). If an online connection to the Banco de España is used, the necessary security checks (institution codes, operator codes, message encryption, etc.) are performed by the software designed by the Banco de España.

The SLBE participants can choose one of the various types of communication procedure or a combination thereof to enter their payment orders into the system and receive payments addressed to them. The fact that they can choose the way in which they participate enables credit institutions to take into account their business requirements (number of operations, available resources for internal development, etc.), makes the system more flexible and facilitates the participation of both large and small institutions.

The possibility of using an alternative system for access as a backup contributes to the very high degree of availability and reliability of the SLBE.

In general, only sending institutions are required to communicate their transactions; however, transactions originating from the secondary market (interbank deposits and the cash leg of transactions with public debt registered in CADE) must be communicated by both participants involved in the operation in order to be matched, registered and settled in the SLBE. For these kinds of operation, the SLBE offers online information on transaction discrepancies between the parties in order to resolve incidents swiftly.

The SLBE also settles the balances arising from the clearing of multilateral net systems. The manager of each system reports the final

positions to the SLBE by simply using a computer terminal. The SLBE carries out clearing, ensuring that credit positions are not credited before all debit positions have been debited.

### 3.2.5 TRANSACTION PROCESSING

The transfers received at the SLBE are processed in real time, by debiting the originating institution's account and crediting the beneficiary account, as the case may be. Where insufficient funds or collateral are available for a possible overdraft, the order will be queued. The position of the order in this queue will depend on the priority assigned to that type of transaction and if two or more transactions have the same priority, they will appear according to the FIFO principle. The participating institutions may give top priority to one of their transactions. Once funds are received, the first transaction in the queue is settled, unless its value is higher than the new available balance. In this case, the system will continue the search until it finds a transaction which can be settled (bypass FIFO mechanism).

Payments and their final settlement are fully transparent for credit institutions, because the whole process can be monitored online by the terminals connected to the Banco de España's computer. The same applies to those orders entered through SWIFT. From these terminals credit institutions can also obtain detailed information on the status of a participant's account (balance, settled and queued transactions, payments in its favour retained on account of a lack of funds on the originating side, statement of the multilateral net systems settlement, statement of cross-border transactions, etc.). This gives all participants an overview of the settlement process, facilitating both payment flows and cash management.

### 3.2.6 SETTLEMENT PROCEDURES

Transactions are settled as and when they are received, provided that there are sufficient funds or collateral.

In order to optimise liquidity management, the SLBE has several optimisation mechanisms. If a participant enters a payment order and there are no funds available, the SLBE checks whether the receiving institution also has payments for the first participant which are queued. If this is the case, it will try to match, and, if possible, settle them. This process is performed continuously and automatically during the whole session.

In order to resolve gridlock situations, the SLBE operators may start optimisation processes which take into account the queued transactions, the multilateral systems' credit transfers which are pending owing to unsettled debit positions, public debt transactions registered in CADE and available balances. With the aid of this information, a virtual balance is calculated as though all of the transactions were going to be settled. If there are sufficient funds, the transactions are settled; if not, the institution faced with a lack of liquidity is required to supply more funds or else its transactions will be excluded. These optimisation processes can be initiated on a discretionary basis whenever necessary.

At the end of the day, unsettled transactions are cancelled.

### 3.2.7 CREDIT AND LIQUIDITY RISK

As the system is an RTGS system, it does not carry any credit risk.

In order to reduce liquidity risk, the SLBE has specified a settlement timetable for the different multilateral net systems. In this way, institutions can manage their liquidity efficiently and avoid the accumulation of unsettled payments.

Credit institutions can also obtain intraday credit, at no cost, by pledging securities or by means of repurchase agreement operations. The greater part of intraday credit in Spain is obtained through such repo operations.

Repo operations are determined the afternoon before, D-1, and are settled at the start of day

D. If a credit institution finds that its liquidity is higher than expected, it can reduce the surplus during the session by cancelling repos in advance; these operations can be performed immediately on account of the fact that Iberclear settles on a DvP basis. The remaining transactions will be cancelled at the end of the day.

If the intraday credit cannot be returned at the end of the day, credit institutions can use the Eurosystem's standing facilities, turning their intraday credit into overnight credit, provided that the institution has sufficient collateral.

A novel feature of the system, introduced in January 2005, is the liquidity reservation mechanism. This procedure, designed to further improve the participants' liquidity management, allows them to reserve liquidity in their accounts (the amount being specified by the participating institution) for the settlement of important payments. Participants may apply various criteria for the use of this liquidity: in the first place, they may reserve funds for specific payments to be designated afterwards; in the second place, the institution can define the types of payment (by their transaction code) that are allowed to use the reserved liquidity; finally, a participant may decide that the reserved funds are to be used for payments addressed to certain participants. The second and third criteria can be applied simultaneously.

### 3.2.8 PRICES

The SLBE has set a monthly fee and a price per transaction, which depends on the additional services provided for each type of transaction (matching, registering, reports, statistics, etc.). Both fees are calculated according to the principle of cost recovery. The Banco de España, as manager of the system, publishes the list of prices in the Payment Systems section of its website.

In addition to the fees charged by the SLBE, participants bear the connection and communication charges. Access to the SLBE

through a computer requires a PC with specific software, and a flat rate must be paid for the telecommunication connection. When accessing the SLBE through SWIFT, the costs are those inherent to the technical requirements of the SWIFT network plus the fee per transaction.

### 3.2.9 STATISTICAL DATA

In 2006 the SLBE processed a daily average of 37,439 payments, with a value of €296 billion. This total comprises cross-border payments sent (with a daily average of 4,046 payments, totalling €27 billion) and domestic payments (with a daily average of 33,393 payments, totalling €269 billion).

## 3.3 THE NATIONAL ELECTRONIC CLEARING SYSTEM

The Spanish retail payment system SNCE was established in 1990 as an ACH. Its management was initially assigned to the Banco de España, but, as a result of the reform of the Spanish payment system, this task has been transferred to Iberpay, a private company owned by the credit institutions participating in the SNCE. However, the Banco de España still has the authority to approve the rules of the system and carry out its oversight.

The SNCE is a decentralised system that processes transactions related to retail payment instruments. Owing to the variety of payment instruments, the SNCE's operating scheme relies on several clearing sub-systems, each of which specialises in a single instrument. Currently, according to its Regulation, these subdivisions are as follows: cheques, credit transfers, direct debits, bills of exchange and other operations. The Other Operations sub-system was created in October 2001 for the processing of a diverse range of transactions (non-standardised documents, commissions and fees from credits and/or documentary remittances, foreign currency exchange, etc.). The Petrol and Traveller's Cheques sub-system<sup>5</sup> was integrated in the Cheques sub-system at end-March 2006.

Most commercial banks, savings banks and credit cooperatives belong to the SNCE, since it has proved to be the fastest and most efficient way of communicating all of the data necessary for the rapid clearing of retail payments. This has been facilitated by a well-structured legal framework entailing various market-efficient solutions – in particular truncation (cheques and bills of exchange below the truncation limit established in interbank arrangements are not physically exchanged but immobilised at the payee's bank) and liability agreements.

The system takes advantage of the paperless communication networks by providing each associated participant with an infrastructure through which all the relevant payment data are bilaterally exchanged between the interested parties. Thereafter transactions are cleared, and settlement takes place at the Banco de España once the net amount has been confirmed. Nevertheless, credit transfers and cheques over €50,000 have been settled individually in the SLBE since June 2005 and are thus not included in the clearing process.

### 3.3.1 PARTICIPATION IN THE SYSTEM

The following institutions are entitled to become participants in the SNCE: the Banco de España (as a member of the system, in order to channel the retail payments of the public administration); and commercial banks, savings banks and credit cooperatives which meet the criteria (compliance with the rules and requirements related to adequate technical capacity, scale of activity, discipline and financial support for the system, etc.) for membership of the SNCE.

There are two forms of participation:

- Direct participation, i.e. participation in the exchanging stage of clearing on the institution's own behalf (with the additional possibility of representing one or more

<sup>5</sup> Petrol cheques are a special kind of payment order on a customer's current account by which the customer can pay at petrol stations.

indirect participants), and subsequent participation in the settlement process.

- Indirect participation (i.e. representation by a direct participant), the requirements for indirect participation are less stringent. Indirect participants do not take part in the settlement stage of clearing, although they may choose to have the individual transactions (credit transfers and cheques over €50,000) directly settled on their own accounts at the Banco de España. In any case, indirect participants never take part in the exchanging stage.

According to figures for 2006 there were 23 direct and 202 indirect participants in the system.

### 3.3.2 TYPES OF TRANSACTION HANDLED

Clearing is carried out for cheques, bills of exchange, credit transfers, direct debits and other operations. At the end of 2006, €686 billion was exchanged in cheque-related transactions, whereas the figure was €719 billion for credit transfers, €168 billion for bills of exchange, €321 billion for direct debits and €5 billion for other operations.

### 3.3.3 OPERATION OF THE TRANSFER SYSTEM AND TRANSACTION PROCESSING ENVIRONMENT

The SNCE has adopted an intermediate solution which constitutes neither a completely centralised nor a completely decentralised clearing and settlement system. Information is exchanged bilaterally between the parties involved without a physical exchange of documents, thanks to truncation agreements that allow the immobilisation of documents at the sender's bank. Clearing is performed in a centralised manner by the SESP (Iberpay), and settlement can take place (likewise in a centralised manner) on the RTGS accounts which each credit institution holds with the Banco de España. All communications are carried out on a private virtual network which complies with a set of security standards.

Documents are no longer physically exchanged, but rather the relevant data contained therein; thus, telecommunication lines are the main channel for member institutions to communicate, via common software, the required information both among themselves and to Iberpay, which permits rapid clearing. Only in the case of documents relating to an amount which exceeds the specified threshold does a traditional exchange become necessary, although the electronic procedures for transmitting the information also take place. However, since November 2003 the physical transfer of some documents has been replaced by the electronic transmission of images. Thus, the vast majority of documents (99.6% in 2006) are processed electronically, i.e. without requiring a physical exchange.

Each transaction is processed in its respective sub-system, so that a net balance for each pair of institutions is obtained in each of the sub-systems. These bilateral balances are reported to Iberpay.

In order to prevent the system from suffering prolonged downtimes or hardware/software crashes, several recovery procedures have been established. In exceptional circumstances, recourse can be had both to a second consecutive session of the SNCE and (as a last resort) to communication via magnetic tapes.

The timetable for communications is not the same in every sub-system. The earliest communications are made at 3.30 p.m. CET in the direct debit sub-system, followed by the credit transfer sub-system, which starts at 7 p.m. CET. The rest of the sub-systems start at 9 p.m. CET.

### 3.3.4 SETTLEMENT PROCEDURES

Since June 2005 there have been two types of settlement. On the one hand, credit transfers and cheques over €50,000 are settled individually on a bilateral basis on the accounts that the participants hold with the Banco de España, which has removed the risk which operations of this magnitude represented for



the SNCE. On the other hand, the remaining transactions are included in the clearing process, which is performed on an electronic basis. Each pair of institutions reports its bilateral net balances to Iberpay, and the latter is entitled to verify their matching, resolving the possible discrepancies in an automatic manner in accordance with a set of established rules. Regardless of this automatic conciliation process, Iberpay informs the institutions of such discrepancies.

Once the bilateral balances have been reported, Iberpay obtains a net net balance (either credit or debit) by consolidating the bilateral balances for each institution in each sub-system. The latter are then settled on the participant's RTGS accounts at the Banco de España by debiting short participants' accounts before crediting those of long participants.

In the event of any incident of a technical nature that prevents communication within a set timetable, Iberpay is free to extend the timetable, to open a special session or, as a last resort, to use the established contingency procedures.

### 3.3.5 PRICING

Participating institutions are subject to the fees established by the system's operator, which include the costs related to connectivity (stemming both from the use of communications and from the compulsory rate charged for the software licence). These fees result from distributing the operational costs of the system among the participants, which is done once a year.

In addition, institutions have established interbanking fees for those transactions whose costs are borne exclusively by the sender. These fees depend on the degree of automatism of the transaction (STP versus non-STP). Finally, each institution must also pay the SLBE's fees for each entry made in its centralised accounts.

### 3.3.6 MAIN PROJECTS AND POLICIES BEING IMPLEMENTED

The process of transferring competences from the Banco de España to Iberpay has virtually been completed. Iberpay took charge of coordinating participant working groups in March 2006 and is in the process of adapting the rules governing the system to the new situation. The Regulation of the SNCE, which contains the basic operating rules of the system, has recently been published. In addition, Iberpay has undertaken the complete management of the clearing process, establishing its own infrastructure and developing its own software, with which it replaced the software owned by the Banco de España in January 2007.

In view of the implementation of the SEPA project, Iberpay has begun work on adapting the SNCE to the new environment. It is envisaged that the SNCE will start to process the new standard SEPA instruments (credit transfers and direct debits) as soon as they are available to the public in 2008.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 INSTITUTIONAL ASPECTS

##### 4.1.1.1 Securities markets and their specific regulation

Law 24/1988 defines official secondary securities markets as those which operate in complete conformity with the provisions of that Law and its implementing provisions, in particular with regard to the conditions of access, admission to listing, operating rules and information procedures. The Law also provides for the creation of other markets and the multilateral trading facility (MTF), which is commonly referred to in Spain as "Sistemas Organizados de Negociación" (SON). These must all be authorised by the central government, if they have a national scope, or by the legally competent regional governments, subject to a



prior opinion of the securities regulator (CNMV).

The official list of regulated secondary securities markets in Spain comprises the four stock exchanges (Madrid, Valencia, Bilbao and Barcelona), the Public Debt Book-Entry Market, the Spanish corporate debt market (AIAF), the financial futures and options markets (MEFF Renta Fija and MEFF Renta Variable) and the futures market for olive oil (MFAO).

BME brings together all the regulated equity, fixed income and futures and options markets, except MFAO, and the clearing and settlement systems. BME integrates the Barcelona, Bilbao, Madrid and Valencia Stock Exchanges, MF Mercados Financieros (comprising MEFF Renta Fija, MEFF Renta Variable, AIAF and the electronic trading platform for debt securities SENAF) and Iberclear, as well as other companies providing complementary services.

#### *Governance of the market*

The Banco de España is entrusted with the regulation of the Public Debt Book-Entry Market. In the stock markets, the stock exchange-governing companies are special private limited companies. They are legally in charge of the organisation and operation of the Market. The Sociedad de Bolsas is also a private limited company held by the four stock exchange-governing companies and is responsible for the management of the SIBE, the electronic trading platform connecting the four Spanish stock exchanges. Lastly, AIAF, MEFF Renta Fija, MEFF Renta Variable and MFAO act as ruling bodies in their relevant markets.

#### *Specific aspects of the Spanish secondary securities markets*

##### – Public Debt Book-Entry Market

Royal Decree 505/1987 of 3 April 1987 created and specifically regulates this market. It was elaborated on the basis of the Ministerial Order

of 19 May 1987, a number of Treasury resolutions and, in addition, Banco de España circulars.

Until 2003 the SSS for the Spanish public debt book-entry system (CADE) was managed by the Banco de España as a division without autonomous legal status, and was legally regarded as a public service for the registration and organisation of the trading and settlement system of this market. In 2003 the public limited company Iberclear was created as a result of the merger between CADE and a private SSS (SCLV), and the Banco de España transferred its function as manager of the Spanish public debt book-entry system to Iberclear.

To promote the smooth functioning and sound regulation of the market there is an Advisory Committee, the members of which are representatives of the Banco de España, the CNMV, the national Treasury, the local governments with public debt listed in the market and the market's participants.

The Spanish Public Debt Book-Entry Market is a decentralised market – comprising various national and European electronic trading platforms and the stock exchange – in which operations are primarily OTC.

The national trading platforms are as follows:

- SENAF (Sistema Electrónico de Negociación de Activos Financieros) is the electronic platform for the trading of Spanish public debt, including bonds, Treasury bills and corporate bonds. It was designated a Sistema Organizado de Negociación (SON) on 23 February 2001.
- MTS Spain is a branch of MTS and was launched on 27 May 2002, after being licensed as an SON.

Spanish public debt is traded on two European trading platforms: EuroMTS and Brokertec.

All transactions traded on such platforms are settled by Iberclear (CADE platform). MEFFCLEAR, the central counterparty for outright and repo transactions traded on the Spanish public debt market, was set up in 2003.

#### – Stock exchange

The stock exchanges have three trading systems: the SIBE (Stock Exchange Interlinking System), the stock exchange open outcry trading and the fixed income electronic market.

The SIBE is a common trading platform for highly traded securities which interconnects the four local stock exchanges (Madrid, Barcelona, Bilbao and Valencia) operating in Spain. At the request of the issuer and on the basis of a prior report by the Sociedad de Bolsas, the CNMV determines which of those securities listed on at least two stock exchanges are to be traded on the SIBE. The Sociedad de Bolsas manages the SIBE, and the four stock exchange-governing companies own its capital in equal proportions.

Until recently there were two special trading segments in the SIBE: the New Market (Nuevo Mercado) and Latibex. These are supervised by the CNMV and run by the Sociedad de Bolsas. These have now been joined by a new segment, the MAB (Alternative Stock Exchange Market).

Iberclear (SCLV platform) is in charge of the settlement of the SIBE and the operations of the Madrid Stock Exchange. The securities traded on the stock exchange outcry sessions of more than one stock exchange are also settled by Iberclear (SCLV platform). Every regional stock exchange has its own SSS (SCL Bilbao, SCL Barcelona and SCL Valencia).

The New Market is intended for securities issued by firms which focus mainly on innovative high-technology industries or sectors offering strong growth opportunities. The creation of this new market was authorised by

the Ministerial Order of 22 December 1999, pursuant to which the CNMV was authorised to set the general criteria for determining which firms' securities are to be traded on this market, as well as the listing requirements. This Ministerial Order was developed by CNMV Circular 1/2000.

The creation of Latibex (the market in euro for Latin American securities) as an organised system for trading securities and other financial instruments was authorised by a resolution of the Council of Ministers of 29 October 1999. The CNMV is responsible for the supervision of this market. Equities and debt securities can be traded on Latibex.

The Alternative Stock Exchange Market (MAB) is a multilateral trading facility for equities and other securities issued by collective investment institutions, for equities and other instruments issued by companies with a low degree of capitalisation, and for other securities requiring a special regime. This new market was authorised by the national government on 30 December 2005. Testing on the new system began in February 2006 in order to prepare it for the commencement of operations in June 2006.

The electronic debt securities segment of the stock exchange trades securities issued by private, public or semi-public companies. Settlement is carried out by Iberclear (SCLV platform).

#### – The AIAF market

The AIAF market (the Spanish Corporate Debt Market) is regulated by the Ministerial Order of 1 August 1991, as amended by the Ministerial Orders of 11 May 1993 and 19 November 1996. The AIAF is the market-governing company. The registration, clearing and settlement functions are carried out by Iberclear (CADE platform). The CNMV is the supervisory authority.

## – Derivatives markets

There are derivatives markets in Spain for the trading of financial futures and options contracts. These markets were initially governed by Royal Decree 1814/1991. Subsequently, this regulation was amended, among others, by Royal Decree 695/1995, which included commodities as underlying assets by establishing special rules applicable to the official secondary markets for citrus fruit futures and options (this market ceased to exist in 2003). Law 37/1998, amending Law 24/1988 on the securities market, included futures and options markets as official secondary securities markets in addition to stock exchanges and the government debt market, whatever the type of underlying asset. By virtue thereof, Ministerial Order Eco/3235/2002 of 5 December 2002 was enacted in order to implement the particular features applicable to the official secondary markets for olive oil futures and options. The Order's salient feature is the provision whereby other non-financial entities that habitually engage in the production, marketing, mediation and/or distribution of olive oil may gain market member status. The specialisation, professionalism and solvency requirements which those industrial market members must fulfil were set forth in CNMV Circular 1/2003.

Ministerial Order EHA/1094/2006 of 6 April establishes the particular features applicable to the official secondary markets for energy derivatives. Industrial members will also be allowed access to these markets.

There are currently two markets for futures and options on financial underlying assets, one for equities and another for fixed income, and they are run by MEFF Renta Variable and MEFF Renta Fija respectively, both of which are subsidiaries of BME. Each of these two companies integrates trading, clearing and settlement into one single entity acting as central counterparty. The rules and regulations of these markets were approved by two Ministerial Orders of 8 July 1992.

### 4.1.1.2 Financial intermediaries operating in the securities markets: types and rules of access to membership

#### *Investment services and investment services firms*

Law 24/1988 (as amended on several occasions, most notably by way of Law 37/1998 – see Section 1.1.3) reflects the essence of Directive 93/22/EEC by including a list of investment services and complementary activities. The category ISFs encompasses three types of entity: securities dealer companies (which may carry on business for own account and for third parties on a professional basis and provide all the investment and non-core services), securities agencies (which may carry on business solely for third parties on a professional basis and may provide investment and non-core services other than dealing for own account, underwriting the subscription of new issues and public offers and granting credit or loans to investors) and portfolio management companies (which may manage portfolios of investments and provide non-core services related to the provision of advice). The creation of ISFs is authorised by the Ministry of Economy and Finance on the basis of a prior proposal from the CNMV. In addition, the government may regulate the creation of other entities and may also allow business access to other individuals or entities which, not being ISFs, perform some of the activities included in the investment services list or promote developments in the securities markets. Credit institutions may also provide all investment and non-core services, provided that their legal regime, articles of association and specific authorisation allow them to do so.

#### *Market members*

In accordance with Law 24/1988, the following institutions are eligible for membership of the official secondary securities markets:

- Spanish securities dealer companies and securities agencies;
- Spanish credit institutions;

- ISFs and credit institutions authorised in other EU Member States, provided that, in addition to fulfilling the requirements laid down in Law 24/1988 for operating in Spain, they are empowered to provide investment services in their home country;
- ISFs and credit institutions authorised in a non-EU state, provided that, in addition to fulfilling the requirements for operating in Spain laid down by this Law, they are authorised to provide investment services in their home country. The Ministry of Economy and Finance may deny membership to such entities or impose conditions for prudential and reciprocity reasons; and
- such others as are deemed eligible by the competent regional governments in this area.

Access to each market is conditional both on the fulfilment of its specific requirements and on admission by the market-governing company. Admission is based on the legal, technical and operational capacity of the applicants and their commitment to respecting the market rules. With regard to the Public Debt Book-Entry Market, the Banco de España and other entities (as stated in government regulations) may, alongside those entities admitted to the official secondary markets in general, be entitled to have the status of market member. Access to membership of this market is also granted to entities engaged in securities clearing and settlement activities.

In order to be accepted as a member of a securities market, it is necessary to be recorded in one of the financial institutions' official registers and thus be subject to supervision by the body in charge of the relevant register.

Market members are authorised to introduce orders into the trading systems, either on their own account, on the account of customers only, or on the accounts of both, depending on the type of institution. In addition, any transaction carried out on the markets requires the

participation of a market member in order to provide the relevant information on trading between parties. Market membership currently allows access to the respective SSS.

#### **Market-makers in the Public Debt Book-Entry Market**

There is a special category of member of the Public Debt Book-Entry Market: the market-makers. Their status is regulated by the Ministerial Order of 10 February 1999 and implemented by resolutions of the Directorate General of the Treasury and Financial Policy. These provisions detail their rights and obligations, as well as access and exit criteria. The Resolution of 20 February 2002 eliminated another special category of member – the dealer entities, regulated by the Resolution of 4 March 1999 – on account of the fact that the conditions justifying their existence had changed.

Market-makers are entitled, inter alia, to the following: participation in state public debt auctions; exclusive access to the second round of such auctions; stripping and reconstituting state bond securities; debt management and placement operations that can be performed by the Treasury, such as syndicated issues in euro, swap transactions and issues in foreign currency; the receipt of information on the Treasury's financing policy; and – where applicable – participation in the setting of targets for the issuance of medium and long-term Treasury instruments. As for their obligations, they must participate in tenders by submitting bids with a minimum value and a maximum price and ensure liquidity on the secondary market (by providing quotations in organised trading systems with a minimum value and a maximum price).

#### **4.1.1.3 Supervision of the markets and their members and the role of public institutions**

The Spanish public institutions in charge of supervising the securities markets and their members are the CNMV, the Banco de España and some regional governments which have competence for a specific regional market.

The Investment Services Directive, introducing the principle of the Community passport or single licence for investment firms – like that which has existed for credit institutions since 1994 – has already been transposed into Spanish law. According to this principle, competence for the oversight of firms established in other EU Member States but operating on Spanish markets is shared between the authorities of both countries: their solvency is controlled by the Member State in which the entity is established, and their activity on the Spanish markets by the Spanish authorities.

Law 5/2005 of 22 April on the supervision of financial conglomerates and amending other laws of the financial sector incorporates into Spanish law part of Directive 2002/87/EC. In this respect, the competent Spanish authorities must conclude coordination agreements with the other authorities which are competent to supervise the same financial conglomerate. Royal Decree 1332/2005 of 11 November was enacted to implement Law 5/2005. The entities subject to this system are credit institutions, investment firms and insurance and reinsurance undertakings, as well as CII management companies and pension funds forming part of a financial conglomerate.

In Spain, the competent supervisory authorities are: the Banco de España, for credit institutions; the CNMV, for ISFs and CIIs; and the Directorate General for Insurance and Pension Funds, for insurance and reinsurance undertakings, as well as for pension funds and their management companies. All three institutions cooperate closely with one another in the performance of their tasks.

#### *The National Securities Markets Commission*

The CNMV was created under Law 24/1988 as a public law institution with its own legal identity. The entities under its supervision include the market-governing companies, the central depositories and the specific securities market intermediaries (i.e. the ISFs). Nevertheless, its oversight competence extends to all other individuals and entities involved in

the investment services business, as far as their activities on the markets are concerned.

The CNMV exercises its competence, inter alia, through the following functions: registration of entities and qualified shareholders, solvency supervision, inspection, imposition of penalties, regulation (circulars) and advisory assistance to the government and the Minister for Economy and Finance.

As a member of the IOSCO and the FESCO, the CNMV has also signed two multilateral memorandums of understanding on cooperation and the exchange of information. In addition, the CNMV has also signed agreements on consultation and technical assistance with national authorities – e.g. in Latin America.

#### *Other authorities*

The Banco de España also has supervisory competence in this field. It is the prudential supervision authority for credit institutions and the regulator and supervisor of the Public Debt Book-Entry Market (the Ministry of Economy and Finance also exercises its authority in this market).

In 2004 the Banco de España and the CNMV signed a memorandum of understanding on cooperation between these public authorities.

#### *Transparency in the operations of regulated securities markets*

The Securities Market Law (Law 24/1988) and the secondary legislation regulating the various secondary markets establish the transparency regime. Law 24/1988 entitles the CNMV, the Banco de España and the market regulatory bodies to determine what constitutes public information subject to public disclosure. This issue is dealt with in particular by CNMV Circular 3/1999 of 22 September.

Three provisions have recently contributed to enhancing transparency, efficiency and competitiveness in Spanish financial markets. First, Law 44/2002 (referred to above) has increased the protection of financial market

customers and users and tightened the auditing and accounting rules for Spanish firms. Second, Law 26/2003 of 17 July (also known as the Transparency Law) was enacted to strengthen the transparency of public limited companies whose shares are traded in an official securities market by fostering the transmission of information both to investors and to the market. Finally, Law 62/2003 of 30 December on fiscal, administrative and social measures requires listed corporate groups to adopt international accounting standards, extends the obligation to appoint an audit committee to all issuers of securities listed on official secondary securities markets and changes certain aspects of savings bank corporate law. This was the background to the publication of Ministerial Order Eco/3722/2003 of 26 December on the annual corporate governance report and other information channels of listed public limited companies and other entities, and the issuance of CNMV Circular 1/2004, which implemented it. Ministerial Order EHA/3050/2004 of 15 September regulates the reporting requirements in respect of operations with related parties to be met by companies issuing securities traded on official secondary markets, and was implemented by way of CNMV Circular 1/2005.

Royal Decree-Law 5/2005 of 11 March transposes into Spanish law Directive 2003/71/EC on the prospectus to be published when securities are offered to the public or admitted to trading. Royal Decree 1310/2005 implements the Securities Market Law in respect of the admission to listing of securities on official secondary markets, public offerings and the prospectus required for such purposes.

The transposition into Spanish law of the various EC directives on insider dealing and market manipulation (market abuse) was effected by means of Royal Decree 1333/2005 of 11 November, which develops Law 24/1988 in this area. Its provisions encompass, inter alia, insider information, market manipulation, fair presentation of investment recommendations, conflicts of interest, accepted

market practices and notification of suspicious transactions.

## 4.1.2 OPERATIONAL ASPECTS

### 4.1.2.1 Types of instrument

The three securities markets (book-entry government debt, stock exchange, and private sector fixed income) trade securities exclusively by book entry. These markets employ high-tech methods, as they use computer networks for the quotation, trading and communication of transactions.

Equities, which can only be traded on the stock exchanges, include ordinary and common shares, preference shares, convertible debt securities and securities bearing acquisition or subscription rights. Those determined by the CNMV (such as debt securities, public and corporate) can also be traded on these markets. All listed securities on the stock exchange markets are dematerialised and kept at the central depository, Iberclear, and in the regional SSSs, where relevant. The majority of the shares registered in Iberclear are, from a legal point of view, bearer shares. Warrants are also listed on the Madrid Stock Exchange.

Public debt securities, which are traded on the Public Debt Book-Entry Market, can be grouped into the following instruments: (i) Treasury bills (Letras del Tesoro) issued by the Spanish Treasury, which are discounted instruments with maturities of 3, 6, 12 and 18 months; (ii) government notes (Bonos del Estado) issued by the Spanish Treasury, which are fixed rate, bearer instruments with maturities of 3 and 5 years; (iii) government bonds (Obligaciones del Estado), which have the same features as government notes, differing only as regards the term of maturity – 10, 15 or 30 years; (iv) public debt securities issued by regional governments, other public entities and corporations, and by international bodies to which Spain belongs, as well as securities issued by the ECB and the NCBS; and (v) strippable bonds with maturities of 3, 5, 10, 15 and 30 years which can be stripped into principal strips and coupon strips;



these are traded separately. Issues can be grouped, and consecutive tranches of a single issue can be placed, thereby ensuring the volumes of homogeneous securities necessary for liquidity in the secondary markets.

The fixed income securities traded on the AIAF market are commercial paper (issued by private and public companies), medium and long-term bonds, mortgage bonds, mortgage-backed bonds, matador bonds, securitised bonds and preferred participation units. All these instruments are dematerialised and registered in Iberclear.

#### 4.1.2.2 Description of the trading systems and operating hours

##### *Stock exchanges*

Equities, corporate bonds and public debt instruments are traded on the stock exchanges via three systems: the SIBE, the traditional open outcry and the fixed income electronic market.

1. The SIBE is a continuous market for trading shares and is in charge of accepting orders, allowing access to the market on a real-time basis and providing market information. This is an order-driven market that provides centralised and automated equity trading for the four stock exchange markets. This trading system is composed of three modules: principal trading, trading by blocks of shares, and special operations trading.

- Principal trading represents around 67% of the daily turnover. It is divided into four systems: the general system, the fixing system, the New Market and Latibex. The general system has been established for the most liquid shares. Trading hours for transactions are from 9 a.m. to 5.30 p.m. CET. In 2001 a maximum price fluctuation for each security was established, subject to static and dynamic variation levels according to the historical volatility of each security. If the limits are exceeded, trading is interrupted, and the securities concerned are

listed in a special volatility auction. The fixing system is reserved for less liquid securities, and its prices are published periodically. The orders are grouped together in two sessions, one at 12 noon and the other at 4 p.m. CET, in order to reduce volatility and achieve price efficiency. Limited and market orders with special conditions are accepted. Orders are assigned priority on the basis of price and input time. There is a similar system of fluctuation to that of the fixing system. Latibex was launched in December 1999 to list Latin American securities denominated in euro. Shares are traded from 11.30 a.m. to 5.30 p.m. CET. The New Market, set up in December 1999, has different operating rules and requires that the risks associated with the company's activity be described in the listing prospectus, that lock-ups affecting shareholders with significant holdings be disclosed and that – at least once a year – a report on the progress of the business and its future prospects be published. Lastly, as regards quotation, the fluctuation limits are higher and more flexible than in the traditional markets. The New Market is open from 9 a.m. to 5.30 p.m. CET.

- Trading by blocks is a specific market for large investors in shares. The operations take place within normal trading hours and must be communicated to the stock exchange. There are two types of trading by blocks: agreed blocks and blocks subject to parameters. The first (only for IBEX35 securities) is used to communicate previously matched blocks of over €600,000 and above 2.5% of the daily trading average for such a security. The second block (for any share) is used to trade and communicate blocks whose volume is above 5% of the daily trading average and over €1.2 million, or blocks with a 15% variation over and above the reference price (25% in the case of New Market securities).
- The special operations market trades blocks of equities between previously agreed



counterparties, attempting to interchange a significant number of shares within a specified period (from 5.30 p.m. to 8 p.m. CET). There are two types of special operation: communicated special operations and authorised special operations. In the first type, trading takes place outside of normal trading hours and the operations in question must be communicated to the stock exchange. In addition, such operations must meet certain requirements as to price and amount. Depending on the size of the trade, exceptional authorisation may be required (for the SIBE when values exceed €1.5 million; for open outcry the minimum value is €300,000).

2. Securities of small companies (equities and corporate bonds) which do not fulfil the requirements for listing on the continuous market are traded by open outcry. At present, the activity in this market accounts for less than 1% of the combined trading of the four stock exchange markets. Trading takes place from 10 a.m. to 12 noon CET on the floor of the four exchange markets, in ten-minute rings which are organised by sector. Prices may fluctuate by  $\pm 10\%$ ; variations over and above this limit cause trading to be suspended for 30 minutes. Thereafter, the outcry is re-opened, with 20% being the maximum variation admitted. Special operations may take place outside of normal trading hours, at a price agreed between the counterparties.

3. The fixed income electronic market is a blind market in which trading of public and corporate debt takes place continuously between 9 a.m. and 4 p.m. CET. Prices may not fluctuate by more than  $\pm 10\%$  in relation to the previous day's closing price. Should that be the case, trading for that issue must be suspended. There are two types of trading: multilateral and bilateral. Multilateral trading is anonymous, screen-based and used in two markets: the order market (where operations are automatically closed on the basis of the best price and sequence of introduction, without volume limit) and the block market for operations above a

certain minimum volume (for public debt over €300,000 and for corporate bonds over €150,000 in nominal terms). In bilateral trading, the transactions are agreed beforehand by the members and subsequently introduced into the system. There is no limit on the value for public debt, but for fixed income securities the effective trading value must be higher than €150,000.

#### *Public Debt Book-Entry Market*

The design of public debt instruments and the primary market channels aims at developing the secondary market for Spanish public debt. On the one hand, the Spanish Treasury has always endeavoured to issue public debt through open tenders and with a simplified list of instruments. On the other hand, adequate mechanisms have been established to achieve a deep and liquid official secondary market on which government debt securities can be traded.

Trading on the secondary public debt market can take place in different segments:

- On the two national electronic trading platforms: SENAF and MTS España.
- Access to SENAF is restricted to public debt dealers (market-makers), which access the system directly or through a blind broker. Trading is electronic, at the best price and anonymous. It constitutes the core of the public debt market, since the agents who participate in this segment commit themselves to list buy and sell prices with reduced differentials, ensuring liquidity for the market as a whole. In order to manage market risk, SENAF marks to market the daily positions of each participant. The settlement of the margins is carried out through the SLBE (the RTGS system of the Banco de España). On the maturity date of the operation, the corresponding amounts are given back to the participants. The settlement of transactions is carried out by Iberclear (CADE platform).

- In MTS Spain there are three types of member: market-makers, price takers and brokers. Outright transactions can be carried out from 8.15 a.m. to 5.30 p.m. CET. There is also a repo segment, created in 2003, for the trading of buy and sell back agreements (from 8 a.m. to 6.30 p.m. CET).
- Securities transfers, which are normally the result of a purchase and sale operation between a participant and a third party (customer) which has no own account at the central register. In such a case, it is necessary to transfer securities between the participant's own account and the segregated account, in which the participant may act as depository or registrar for the third party.
- Bilateral trading, direct or through a broker, is a decentralised segment (also referred to as “second step”) through which the rest of the trading between account holders is performed. Maturity operations and double operations are permitted.
- The third trading segment includes transactions between direct participants and their customers.

#### **The AIAF market**

The AIAF, the regulated secondary market for the trading of corporate debt securities, is a decentralised market with two segments: one for short-term financial instruments (commercial paper) and the other for bonds (long-term instruments). Most of the securities are dematerialised, although there is a small percentage of physical securities. Trading is mainly conducted through the OTC market, and the information on offers and prices is available on screen.

#### **4.1.2.3 Types of transaction handled**

Two types of transaction are commonly conducted in the Spanish securities markets:

- Purchase and sale transactions among market members. These entail the dual settlement of cash and securities accounts. In the Public Debt Book-Entry Market and the AIAF market, outright (spot or forward), sell and buy back transactions and repo operations (generally two-stage operations) can be carried out. On the stock market, only outright operations are possible, and trading is currently concentrated on the spot market.

Another type of transaction is the total or partial immobilisation of the securities balance in order to issue certificates for collateral purposes.

#### **4.1.2.4 Connection to other systems**

Since September 1999 the securities traded on the Spanish Public Debt Book-Entry Market have also become tradable on the EuroMTS platform, and since 2000 in Brokertec. Transactions in Spanish public debt securities carried out in the EuroMTS electronic trading system are settled in Iberclear (CADE platform) on T+3.

In this context, it should be noted that the cross-border links established by Iberclear with foreign central securities depositories allow trading in foreign securities on the Spanish domestic securities markets under the same conditions as for domestic securities.

SENAF and Eurex have reached an agreement whereby SENAF members will be able to trade a financial instrument called Basis using the SENAF platform. A Basis trade is a purchase/sale of futures contracts and a simultaneous sale/purchase of debt securities. The futures will be those of Eurex, and the debt securities will be Spanish issues traded in the SENAF market. SENAF has become a Eurex service provider and is authorised to give its clients access to the Eurex German futures market.

## 4.2 CLEARING

### 4.2.1 INSTITUTIONAL AND LEGAL ASPECTS

The Securities Market Law (Law 24/1988), as amended by Law 44/2002 of 22 November 2002 on measures to reform the financial system, provides for the creation of one or more central counterparties, the purpose of which is to eliminate counterparty risk from transactions by interposing a central counterparty between the buyer and the seller. Prior to this reform, such an arrangement was only used for derivatives.

The central counterparty or counterparties must carry on their activities in accordance with the relevant regulations, which must be approved by the Ministry of Economy and Finance on the basis of reports from the CNMV, the Banco de España and the regional (autonomous) governments whose “statutes of autonomy” authorise them to regulate securities trading centres. The central counterparty is subject to supervision by the CNMV and the Banco de España in their respective areas of competence and is entitled, under the Law, to enter into agreements with other resident and non-resident entities that have similar functions or that manage securities clearing and settlement systems, to hold shares in such entities and to allow them to have holdings in its own capital. Such agreements require the approval of the CNMV.

MEFF Renta Fija and MEFF Renta Variable (MEFF RF and MEFF RV) are the official Spanish exchanges for financial futures and options (see Section 4.1.1.1) and are integrated into BME. MEFF RF governs the exchange and clearing house for fixed income futures and options, as well as MEFFCLEAR, the central counterparty for debt securities. MEFF RV governs the exchange and clearing house for equity futures and options.

#### *Participation in the systems*

For derivatives, MEFF has three types of member in its system: clearing members, trading members and clients. The clearing

member is responsible, on its own account or on behalf of customers, for compliance with obligations in respect of posting margins and making adjustments and settlements as a result of transactions made on the market. It also makes cash payments and collections and buys and sells underlying assets on its own account or on behalf of its customers. The trading member trades on the market on its own account or on behalf of its customers. Customers open accounts through a member; their accounts and the margins derived from their positions are segregated in the clearing house, which is their direct counterparty.

Participants in MEFFCLEAR can be clearing members or customers. Clearing members are participants with a direct responsibility for both their own and their customers’ accounts vis-à-vis MEFFCLEAR.

### 4.2.2 OPERATIONAL ASPECTS

There are currently two central counterparties in Spain: MEFF, for the transactions carried out on the derivatives market, and MEFFCLEAR for transactions with debt securities traded on electronic trading systems or the OTC market.

MEFF integrates the trading, clearing and settlement of financial futures and options into one single system. When the members of the derivatives market register a trade on MEFF, it assumes the rights and obligations inherent in the trade, acting as the seller to the buyer and the buyer to the seller. MEFF carries out a multilateral settlement. The system calculates all debits and credits, taking into consideration the margins to be posted in cash, the settlement of the profits and losses (daily price adjustments), the settlement of fees (if applicable), and the settlement of premiums. The cash settlement takes place in the RTGS of the Banco de España accounts in a single batch (9 a.m. CET) on the settlement date.

For the purpose of evaluating and minimising the risk that it takes, MEFF has implemented different risk control mechanisms, such as a daily trading limit, intraday margin calls, an

open position limit and filters for each kind of contract based on volatility and liquidity.

MEFFCLEAR acts as central counterparty for government debt securities traded on electronic trading systems or OTC between clearing members and/or clients. When a trade is registered in MEFFCLEAR, the rights and obligations of the parties as regards that transaction are automatically understood to be novated, and MEFFCLEAR becomes the counterparty, creating new rights and obligations for the clearing members and/or customers with MEFFCLEAR, replacing those of the original trade. The settlement of the securities transactions is carried out by Iberclear, with which an agreement is established. MEFFCLEAR does not offset settlement positions, but takes into account the net positions in calculating margins. The cash settlement of the margins is carried out in the multilateral settlement cycle of MEFF.

### 4.3 SETTLEMENT

#### 4.3.1 INSTITUTIONAL AND LEGAL ASPECTS

##### *General legal aspects*

Settlement, as an activity relating to the securities markets, is regulated in Spain by Securities Market Law 24/1988 of 28 July, as amended by several laws, in particular Law 37/1998 of 16 November and Law 44/2002 of 22 November (see Section 1.1.2). The Securities Market Law establishes the general principles to be observed by SSSs and has been elaborated through a number of different provisions.

The last of these amendments is particularly significant inasmuch as it provides for the creation of the Sociedad de Gestión de los Sistemas de Registro, Compensación y Liquidación de Valores (company managing the systems for the registration, clearing and settlement of securities), commonly known by its commercial name “Iberclear”, through a merger of the SCLV and the CADE systems. According to Law 24/1998, as amended, the new company has the following functions:

- to keep the accounting records for book-entry securities listed on stock exchanges or on the Public Debt Book-Entry Market, as well as the securities listed on other secondary markets, when their governing bodies so request;
- to manage the settlement and, where applicable, the clearing of securities and cash arising from ordinary transactions carried out on those secondary markets;
- to provide technical and operating services directly related to those functions, and any others that may be necessary for Iberclear to coordinate its activities and cooperate with other securities recording, clearing and settlement areas and systems and to be able to participate in the latter;
- such other functions as may be assigned to it by the government on the basis of a report from the CNMV and, where applicable, from the Banco de España.

The regional (autonomous) governments with powers in relation to securities according to their “Statutes of Autonomy” have, under the Securities Market Law, set up their own clearing and settlement services for the securities listed on their respective stock exchanges (the Barcelona, Bilbao and Valencia Stock Exchanges).

At the same time, the Law provides that the government, on the basis of a report from the CNMV and the Banco de España, may authorise other financial institutions to carry out all or any of the functions assigned to Iberclear. Such institutions must comply with the minimum requirements laid down in the relevant regulations and are subject to the same supervision and disciplinary arrangements as Iberclear.

Although not related to securities settlement, it is worth noting that Iberclear was authorised by the government on 19 November 2004 to maintain and manage the Spanish registry of

greenhouse gas emission allowances (RENADE) as part of the integrated Community registries system, in application of the Kyoto Protocol and, in particular, of Directive 2003/87/EC. Law 1/2005 of 9 March and Royal Decree 1264/2005 regulate the organisation and functions of RENADE, which entered into operation on 20 June 2005. At the moment only free-of-payment operations are possible.

Law 41/1999 of 12 November, which incorporates the provisions of the Settlement Finality Directive, recognises the following SSSs in Spain:

- CADE, the central registry providing settlement services for the Public Debt Book-Entry Market. The securities eligible for deposit and settlement in CADE are Treasury bills and bonds issued by the central government and regional governments and other public bodies. It is also possible to register public debt securities issued in EU CSDs through the existing links.
- SCLV, the SSS for the Madrid Stock Exchange and for securities traded on more than one stock exchange. In addition, there are three regional systems in Spain with limited scope: SCL Barcelona, SCL Bilbao and SCL Valencia, managed by their respective stock exchanges. This regulatory framework is similar to that described for SCLV. The CNMV and the respective regional governments provide for their regulation.
- SCLV-AIAF, the clearing, settlement and safekeeping system for the securities traded on the AIAF market, is managed by Iberclear. The settlement platform used for these securities is the same as for CADE.

Law 41/1999 establishes the settlement finality rules applicable in the event that insolvency proceedings are brought against a participant. Thus, there is no chance of revoking the sale of securities or the granting of collateral the

instructions for which have been delivered and accepted by the system prior to initiation of the proceedings, or even following initiation, if cleared and settled on the same day. Article 11 of Law 41/1999 establishes the validity and finality of both the funds and securities transfer orders.

#### *Legal basis*

The regulatory framework adopted by the Spanish financial authorities for the Spanish SSSs is as follows:

- CADE: Securities Market Law 24/1988 of 28 July, as amended in this respect by, in particular, Laws 37/1998 and 44/2002; Law 41/1999 of 12 November on payment and securities settlement systems; Royal Decree 505/1987 on the creation of a book-entry system for government debt; and several orders of the Ministry of Economy and Finance and circulars of the CNMV and the Banco de España on a range of relevant aspects. Once the requirements of Law 44/2002 had been met and the time periods specified had elapsed, Order Eco/689/2003 of 27 March 2003 approving the Iberclear Regulation was enacted. This Regulation draws on the existing rules governing the registration and settlement system of CADE.
- SCLV and SCLV-AIAF: Securities Market Law 24/1988 of 28 July, amended in this respect by, in particular, Laws 37/1998 and 44/2002; Law 41/1999 (referred to above); Royal Decree 116/1992 on dematerialised securities and clearing and settlement of stock exchange transactions; several orders of the Ministry of Economy and Finance and circulars of the CNMV; and Order Eco/689/2003 approving the Iberclear Regulation, which also draws on the existing Regulation on the organisation and functioning of the Securities Clearing and Settlement Service (SCLV), with some additions and modifications.

- Regional SSSs for the Barcelona, Bilbao and Valencia Stock Exchanges: the legislation of the autonomous governments together with the body of legislation applicable to SCLV.

### *Regulation and supervision*

In addition to the aforementioned general legislation, rules on clearing and settlement procedures are issued by the governing companies of each system. In Iberclear (CADE and SCLV) these rules are known as circulars, releases and operational instructions. These rules are complemented by specific technical rules covering more detailed aspects of their activity. In many cases, the rules require the approval of the supervisor.

CADE and SCLV are run and managed by Iberclear and supervised and overseen by the CNMV. As for the regional SSSs, the respective local governments are responsible for their regulation and supervision, together with the CNMV. The systems themselves are also audited externally and internally.

Although all supervisors and regulators have their own area of competence and carry out their activities on an independent basis, coordination takes place at a general level through cross-membership of the boards of directors of the different regulatory bodies (see Section 4.1.1.3).

### *Participation in the systems*

Law 41/1999 provides that the general requirements for membership of Spanish settlement systems must be approved by the relevant supervisory authorities and published in the BOE (Official Spanish Gazette). In general, the participants are credit institutions and investment services companies.

- There are two main types of CADE member: entities entitled to register their own securities holdings (direct account holders) and entities which are allowed to register securities on behalf of customers as well as on their own account. The system clearly

separates the participants' own holdings from the customers' holdings, as there are two kinds of securities account: an account for the participants' holdings and another (omnibus) account for the customers' holdings. The admission criteria are clearly established in Law 37/1998. In order to be admitted, an institution must belong to one of the categories (largely credit institutions, investment firms, international financial institutions, CSDs and NCBs) listed in the aforementioned Law. Participants must meet both solvency and technical and management capacity requirements. Remote access is allowed. For the settlement of the cash leg, it is compulsory to have a cash account at the Banco de España or to designate a settlement bank for this purpose.

The authorisation and termination of membership is decided by the Ministry of Economy and Finance on the basis of a proposal from the system together with a report from the CNMV. Within each membership category, all members are subject to the same rules and conditions. The conditions under which membership can be revoked are as follows: insufficient trading volume, non-fulfilment of membership requirements, insolvency procedures, sanctions and a formal request from the participant.

- SCLV has the following participants: securities dealer companies, securities agencies, brokers, banks, savings banks, official credit institutions, the Banco de España and foreign entities with activities similar to those of Iberclear. Of these entities, those which are market members of a stock exchange must necessarily become participants in SCLV, while the remainder must apply for authorisation. In order to gain access, the participants are required to have adequate control systems and technical equipment to develop their settlement functions. They must also deposit a certain amount of collateral in the collateral pool established by Iberclear in order to ensure



the successful outcome of settlement. For the settlement of the cash leg, it is compulsory to have a cash account at the Banco de España or to designate a settlement bank. It is the CNMV which, on the basis of a report from Iberclear on the fulfilment of the requirements by the candidate, grants authorisation to participate in the system. The CNMV also decides on whether or not a participant's membership should be terminated.

The circumstances under which membership is rescinded are as follows: a formal request from the participant; non-fulfilment of the requirements; cessation of activities as a securities dealer company or securities broker agency; indebtedness on the part of an entity (as determined by the system); and an insufficient settlement volume.

Similar access and exit criteria are defined for the regional SCLs (Barcelona, Bilbao and Valencia).

- In order to become a participant in the settlement system for AIAF market operations, it is necessary to be a member of the AIAF market. The scheme for securities accounts is similar to that of the CADE system (with securities accounts being segregated). With regard to access criteria, adequate control systems and technical equipment must be in place; all technical and functional requirements must be fulfilled; and a cash account must be held at the Banco de España (or with a designated settlement agent). Iberclear grants authorisation and decides on the termination of the membership status. The three cases in which a participant will cease to be a member are as follows: where the participant (i) makes a formal request, (ii) fails to fulfil the access criteria, or (iii) enters insolvency proceedings.

#### 4.3.2 OPERATIONAL ASPECTS

Iberclear runs two technical platforms: the SCLV platform and the CADE platform.

The Spanish SSSs apply three general principles: multilateral netting of the cash leg of the transactions, DvP and neutrality. The CADE platform is the exception and employs a gross real-time settlement procedure. Payments from all of the systems are settled on the cash accounts held at the Banco de España (centralised accounts) by the participants.

As mentioned in Section 4.3.1.4, there are two types of account in the CADE platform: an account for recording the securities holdings of the direct account holders, and a customer account for securities held on behalf of customers. The SCLV platform has a scheme similar to that of the CADE platform, whereby participants' accounts may be split into own accounts and customer accounts.

##### 4.3.2.1 Operational aspects of settlement

###### *Transfer system and transaction processing environment*

In the government debt book-entry market and the AIAF market, participants report their transactions to Iberclear (CADE platform) on the trade date, regardless of the settlement date. The messages reported for each operation are matched and recorded as a traded transaction, provided that there are no discrepancies.

Transactions are always settled on the settlement date, irrespective of the trade date. On the settlement date the CADE credits and debits the corresponding securities account, provided that the seller's balance is sufficient.

In order to update the balance of the customers' accounts, the dealers report the net overall change in the balance on each of their customers' accounts on a daily basis. Iberclear checks that these data are consistent with the omnibus account balances resulting from the securities transactions settled during the day.

With regard to stock exchange transactions, the settlement cycle is T+3. On the trade date, all transactions carried out by the market members are reported by the stock exchange to Iberclear

(SCLV platform) on an aggregated basis (either electronically or via file transfer). Stock exchange members have one day (up to the afternoon of T+1) to break the aggregated trading down into itemised transactions specifying the settling agent. A list of the transactions resulting from the breakdown is reported online by the SCLV platform to the settling participant. The settlement institutions have an extra day, namely until T+2, to accept or reject any transaction. No rejection implies that the trade is accepted by the settling participant and will therefore be irrevocably settled on T+3. If rejected, the trade will be allocated to the market member. Once the net cash positions are settled in the cash account at the Banco de España, the settlement of the trades becomes final (T+3).

Settlement in the SCLV platform may also occur through the “traspaso”, which is a securities transfer – either free of payment or against payment – between two SCLV platform participants in which ownership cannot change (i.e. when a portfolio is transferred to a different local custodian without change of beneficial ownership).

For both the CADE and SCLV platforms, participants can be connected to Iberclear through file transfers and through an online computer link. They can communicate the transaction orders and obtain online information about the securities transfer instructions as well as balances of the securities accounts. Participants are thus able to monitor the status of their orders (unmatched, matched, provisionally settled, final, etc.) during the entire matching and settlement process. Iberclear is currently implementing a new matching procedure for both technical platforms.

#### *Settlement procedures and DvP arrangements*

Iberclear settles all securities transactions in central bank money on the RTGS of the Banco de España.

The CADE platform allows settlement of transactions on a real-time basis. It follows BIS DvP Model 1. There is both an overnight and an end-of-day batch. In the interim period, the CADE platform settles FOP and DvP transactions on a real-time basis. The overnight batch is available for all transaction orders communicated to CADE before 6 p.m. CET on T-1 and becomes final at 7 a.m. CET on the settlement day (T), provided that there are sufficient funds and an adequate securities balance in the corresponding accounts. The real-time settlement process runs from 7 a.m. to 4 p.m. CET during the settlement day. In this real-time process, the application first of all checks whether there is an adequate securities balance. If this is the case, but the securities buyer has an inadequate funds balance, the transaction order is rejected and returned to the CADE platform, where it remains in a queue. The process is periodically activated until there is sufficient balance on the corresponding accounts to settle the pending orders with finality. If the balance in the securities account of the seller is insufficient, the operation remains queued. Whenever this securities account is credited, the system checks that the instructions queued can be carried out. At the end of the day, the system attempts for the last time to settle all transactions which were not settled in the first cycle or during the real-time process. The end-of-day settlement batch cycle takes place at 5 p.m. CET. If the securities account of the seller has a sufficient balance, it is blocked until the application checks (through the interface with the payment side) that there is also a sufficient balance in the buyer's cash account. Once the transfers of cash and securities are completed, finality is achieved for each transaction.

The SCLV platform carries out gross settlement of securities and net settlement of cash (BIS DvP Model 2). The settlement of the cash leg of the securities transactions takes place via two multilateral batch cycles on the cash accounts of the Banco de España at 9 a.m. CET and 3.30 p.m. CET. The cash settlement of corporate events takes place at 11.15 a.m. CET, while the

cash settlement of other operations, such as fees and cash collateral, is also carried out via a bilateral batch at 12 noon CET.

All of the regional systems use central bank money for the settlement of the cash leg. The SCL Barcelona system provides intraday finality for DvP transactions with Catalan government debt securities and asset-backed securities. Intraday finality is also provided for FOP transactions with any security. In addition, the system provides a multilateral batch cycle at 10.30 a.m. CET for all securities traded on the Barcelona Stock Exchange. The cash settlement for other financial operations is carried out via a bilateral batch at 1 p.m. CET. In SCL Bilbao and SCL Valencia the settlement of the cash leg of the securities transactions takes place via a single multilateral batch cycle during the morning. Intraday finality is only provided with predeposited securities. In SCL Barcelona and SCL Valencia the time-lag between the trading date and the settlement date is T+3, in SCL Bilbao T+1. In all systems, the participants must have a cash account at the Banco de España or they must designate a settlement bank. In compliance with the DvP principle, coordination is required between these systems and the Banco de España managers.

#### *Operating hours*

Transfer instructions can be submitted to the CADE platform from 7 a.m. to 6 p.m. CET. In the SCLV platform, online communications can be reported between 7 a.m. and 7 p.m. CET, and file transfer orders can be submitted between 5 p.m. and 7 p.m. CET. These deadlines can be extended under exceptional circumstances. Similar deadlines to those applied by the SCLV platform are also applied in the regional SSSs (with the exception both of SCL Bilbao transactions, for which there is an earlier cut-off time owing to its T+1 settlement cycle, and of the real-time transactions in SCL Barcelona, which must be submitted before 4 p.m. CET).

#### *Custody services*

Iberclear and the Spanish regional systems also provide custodial services (depository and

register functions) as well as corporate action services. These functions are not outsourced and are offered by the systems directly without the intervention of any third party.

In Spanish systems, the registration and depositing of all securities takes place in book-entry (dematerialised) form. In the case of certain securities (private fixed income securities) this has been the case only since the end of 1998. The existing physical securities are deposited and immobilised in a depository in the name of Iberclear, which holds the securities on behalf of its participants and customers. They are registered in Iberclear by means of computer records. There is a contractual arrangement between the depository and the CSD.

#### *Credit and liquidity risks and their management*

All Spanish SSSs apply the DvP principle as a basic measure for preventing principal risk, since DvP mechanisms ensure that counterparties are not exposed to principal risk in the course of the settlement process. The settlement risk of the cash leg of the securities transactions is zero, since it takes place in central bank money. Debit balances in securities are not permitted in any system, and neither is the partial execution of securities transfer orders. The systems do not take any risk vis-à-vis the participants in the settlement process.

In addition to solvency and other financial and technical capacity requirements established as membership criteria, the following measures are laid down in respect of the Spanish SSSs in order to reduce risk:

- There is an automatic securities lending procedure managed by Iberclear (CADE platform), whereby any participant which does not have an adequate securities balance at the close of business receives the required securities. In order to become a member of the pool of lenders, the account holders must sign a contract with Iberclear specifying the rules governing this securities

loan. The loan instrument consists of an overnight repo transaction between the lender and the borrower in accordance with the rules defined in the contract. Use is made of haircuts in order to remove the market risk for the lender, and the interest rate of such instrument is nil (penalty for the borrower). Within this lending facility, the system never acts as counterparty.

- On the stock market, Iberclear (SCLV platform) has established a collateral pool to ensure the successful outcome of the trades pending for settlement, which is regulated by Royal Decree 116/92. The collateral may consist of cash deposits, bankers' guarantees, insurance or pledged securities. The total amount of the collateral deposited is determined, on a monthly basis, by a combined number of participants in accordance with a criterion based on the actual course of trading activity over the past three months. The quota assigned to each participant is also reviewed every month and is based on the average of pending settlements which the participant has maintained during the past three months. This collateral deposited by each participant is used without any limit in order to ensure the settlement of the obligations entered into by the participant. Should this be inadequate, Iberclear proceeds to use the other participants' collateral in proportion to the amount which each has provided. At any moment, Iberclear may require the participant to deposit additional collateral, taking into account the daily positions.
- In the event of a failure to deliver securities, a mechanism called the centralised securities loan is applied by Iberclear (SCLV platform). The purpose of this automatic securities lending procedure is to deliver securities to buyers on the settlement date. Naturally, the non-performing seller does not receive payment from its sale. Iberclear retains these funds, on which a return is obtained to pay interest on the securities borrowed.

- In order to avoid incidents both in centralised cash accounts and in securities accounts, Iberclear imposes a penalty of €2,000 in instances where the participant has insufficient securities or cash to settle the pending transactions at the end of the session. The CNMV monitors the incidents in the system.
- In order to ensure final payment on the settlement date, a guarantee of up to €30 million is provided to Iberclear by three of the major credit institutions.

#### *Operational reliability*

All Spanish systems ensure the operational reliability of the technical systems and computers which they use. Analyses have been made of the potential operational risks and threats, and adequate measures taken. All of these systems have the necessary processing capacity and the corresponding backup facilities. In the event of a breakdown, the systems can keep the registering and communication functions running. Contingency plans have also been put in place.

The systems carry out regular analyses of the capacity of the equipment and its efficiency and have put in place procedures for coping with the development of, and modifications to, the systems. Any potential modification to the system is adequately tested beforehand.

All of the systems have adopted security measures for preventing unauthorised access to the systems and unauthorised use of the securities accounts. Access is monitored continuously. In addition, all the systems have strict security measures which safeguard the authenticity, integrity and confidentiality of the information during the whole process, including during the exchange of messages.

#### *Pricing*

Iberclear's regulation, approved by Ministerial Order ECO/689/2003 of 27 March, establishes, in Article 8, the fee schedule applicable to participants and issuers. There are different

fees according to the different services provided, i.e. a monthly membership fee, a custody fee, a settlement fee and fees for other services.

#### 4.3.3 LINKS WITH OTHER SSSs

Current Spanish legislation entitles Iberclear to enter into agreements with resident and non-resident institutions that perform similar functions, and with central counterparties or other entities, on the opening and keeping of accounts or any other activities that it performs.

The contracts governing the links to foreign SSSs follow the ECSDA model. All Spanish direct links have been established exclusively for the transfer of securities on an FOP basis. The direct links within the EU have been assessed and approved as eligible for use in the Eurosystem's credit operations.

Iberclear has made an arrangement with the regional SSSs (SCL Barcelona, SCL Bilbao and SCL Valencia) under which it has opened an account in these systems with a view to facilitating the transfer of the securities managed by these systems to those foreign depositories to which Iberclear is linked. The scope of this arrangement is limited to allowing Iberclear to include in the links with foreign CSDs the securities recorded in the SCL Barcelona, SCL Bilbao and SCL Valencia systems. Thus, Iberclear becomes a member of the different systems and can only hold securities on behalf of the foreign CSDs to which Iberclear is linked, acting as a "single entry point" for these securities. Securities cannot be moved from Iberclear to these systems, nor can securities issued in Iberclear be transferred between SCL Barcelona, SCL Bilbao and SCL Valencia.

At present, Iberclear has links with: Euroclear France, Euroclear Netherlands, Clearstream Banking AG Frankfurt and Monte Titoli. The securities included in these links are debt securities and shares, except for the link with Clearstream AG, which involves debt securities only. Outside of the EU, Iberclear also has

direct links with the register and settlement systems of Brazil and Argentina and links – through a participant – with Mexico, Chile, Peru and Puerto Rico.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE BANCO DE ESPAÑA

The Banco de España has a significant relationship with the Spanish systems as user. The Banco de España has securities accounts in Iberclear and the regional SCL systems. These securities accounts register the securities which are delivered to the Banco de España as collateral in monetary policy and intraday credit operations.

The Banco de España uses two main procedures and legal techniques to collateralise the monetary and intraday credit operations, in accordance with the legal instrument allowed in each system: the pool of assets pledged and the repo with transaction margining. Hence, the securities accounts in Iberclear (CADE platform) and SCL Barcelona can be used for repo transactions and pledging, whereas the securities accounts in Iberclear (SCLV platform), SCL Bilbao and SCL Valencia are used only for pledging. In Spain, the formalities required for pledging marketable securities have been simplified. Thus, the securities registered in book-entry form benefit from a more straightforward procedure, which does not require a signature in an official deed. In Spain, the pledger of the securities is, from a legal point of view, the owner of the securities, and the coupon payments are thus paid to the pledger.

Apart from the aforementioned use, the Banco de España has a securities account in Iberclear for the purpose of reserve management. However, the balance maintained for this purpose is not significant.



# FRANCE

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## LIST OF ABBREVIATIONS

AFECEI	French Association of Credit Institutions and Investment Firms – <i>Association Française des Établissements de Crédit et des Entreprises d'Investissement</i>
AMF	Financial Markets Authority – <i>Autorité des Marchés Financiers</i>
ASF	Finance Companies Association – <i>Association des Sociétés Financières</i>
BCC	<i>Banque Centrale de Compensation</i>
CB	Banking Commission – <i>Commission Bancaire</i>
CCLRF	Consultative Committee for Financial Law and Regulation – <i>Comité Consultatif de la Législation et de la Réglementation Financières</i>
CCSF	Financial Sector Consultative Committee – <i>Comité Consultatif du Secteur Financier</i>
CECEI	Credit Institutions and Investment Firms Committee – <i>Comité des Établissements de Crédit et des Entreprises d'Investissement</i>
CEPC	Paper-Based Cheque Exchange Centre – <i>Centre d'Echange Physique de Chèques</i>
CFONB	French Committee for Banking Organisation and Standardisation – <i>Comité Français d'Organisation et de Normalisation Bancaires</i>
CIRCE	Interbank agreement governing exchange conditions – <i>Charte Interbancaire Régissant les Conditions d'Echange</i>
CNCT	National Credit and Securities Council – <i>Conseil National du Crédit et du Titre</i>
CRBF	Banking and Financial Regulation Committee – <i>Comité de la Réglementation Bancaire et Financière</i>
CRI	Centre for Interbank Funds Transfers – <i>Centrale des Règlements Interbancaires</i>
EIC	Truncated Cheque Exchange Arrangement – <i>Echange d'Images Chèques</i>
ESES	Euroclear Settlement of Euronext-zone Securities
FBF	French Banking Federation – <i>Fédération Bancaire Française</i>
FCC	Central Cheque Register – <i>Fichier Central des Chèques</i>
FNCI	National Register of Irregular Cheques – <i>Fichier National des Chèques Irréguliers</i>

GCB	Bank Card Consortium – <i>Groupement Cartes Bancaires</i>
GSIT	Interbank automated clearing group – <i>Groupement pour un système interbancaire de télécompensation</i>
GUF	SWIFT Users Group in France – <i>Groupement des Utilisateurs SWIFT en France</i>
HAJE	Cut-off times (in SIT system) – <i>Heures d'arrêt de la journée d'échange</i>
MFC	Monetary and Financial Code
NSC	New electronic trading system used by the French stock exchange since 1995 – <i>Nouveau Système de Cotation</i>
PLC	Intraday repo (for auto-collateralisation purposes) – <i>Pension Livrée Conservatoire</i>
PLI	Intraday repo (TBF) – <i>Pension Livrée Intrajournalière</i>
PNS	Paris Net Settlement system
RGV2, revocable channel	High-Speed Securities Settlement System 2, revocable channel – <i>Règlement-livraison de Titres (Relit) Grande Vitesse 2, filière révocable</i>
RGV2, irrevocable channel	High-Speed Securities Settlement System 2, irrevocable channel – <i>Règlement-livraison de Titres (Relit) Grande Vitesse 2, filière irrévocable</i>
RSB	Banking Services Network – <i>Réseau de Services Bancaires</i>
SFPMEI	Special-purpose credit institution for issuing e-money – <i>Société Financière du Porte-monnaie Électronique Interbancaire</i>
SIT	French automated clearing house – <i>Système Interbancaire de Télécompensation</i>
SSE	Single settlement engine
STET	Technological Systems for Exchanges and Processing – <i>Systèmes Technologiques d'Échanges et de Traitement</i>
TBF	RTGS system operated by the Banque de France – <i>Transferts Banque de France</i>
TIP	Interbank payment order – <i>Titre Interbancaire de Paiement</i>

## INTRODUCTION

The French settlement infrastructure for wholesale transactions comprises three systems settling in central bank money and closely linked by real-time bridges:

- Transferts Banque de France (TBF); this system – the French RTGS system operated by the Banque de France and part of the TARGET system – is at the heart of the French settlement infrastructure;
- in the field of SSSs, the high-speed Règlement-livraison de Titres (Relit) Grande Vitesse 2 system (RGV2, irrevocable channel). Thanks to its close link with the RTGS system and an efficient mechanism for self-collateralisation, the RGV2 system provides for continuous, intraday final DvP in central bank money; and
- the Paris Net Settlement (PNS) system, which can be described as a real-time net settlement system, combining netting mechanisms, while settling in real time and in central bank money.

In the field of retail payment systems, the dematerialisation of interbank exchanges of means of payment was fully achieved in 2002 with the introduction of the truncated cheque exchange arrangement. The cheque clearing houses were closed, and all retail payments have since been cleared in the French automated clearing house (Système Interbancaire de Télécompensation; SIT).

The organisation of the French market-place in the field of securities trading, clearing and settlement relies mainly on three pan-European infrastructures:

- Euronext Paris SA, which manages three regulated markets (Eurolist, Matif and Monep) and two unregulated markets (Alternext and the Marché Libre).

- LCH.Clearnet SA, which provides central counterparty services to, in particular, the French, Belgian, Dutch and Portuguese markets.

- The Euroclear France RGV2 system, which comprises two settlement channels: an irrevocable channel (DvP Model 1), which is largely for OTC fixed income transactions, and a revocable one (DvP Model 2), which is mainly for the settlement of equities trades.

The Banque de France has played a major role in these developments, in line with its statutory mandate of ensuring the smooth functioning both of payment systems and of securities clearing and settlement systems. This mandate is fulfilled through the different roles played by the Banque de France in the field of payment infrastructures, as operator of the RTGS payment system and as overseer of payment and securities systems.

As from 2007/08, the implementation of different projects aimed at contributing to the integration of European retail payment services (Single Euro Payments Area (SEPA)), of the infrastructure for large-value payments (TARGET2) and of the settlement of securities transactions (Euroclear Settlement of Euronext-zone Securities (ESES)) will lead to the significant development of all the systems used by the Paris financial centre.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### I.1.1 GENERAL LEGAL ASPECTS

##### I.1.1.1 Issuance and administration of means of payment

Along with the reception of funds from the public and credit operations, the issuance and administration of means of payment is, in accordance with Article L311-1 of the Monetary and Financial Code (MFC), a banking operation that may only be carried out as regular business by credit institutions (Article L511-1 of the MFC). Moreover, Article L511-5 prohibits any undertakings other than credit institutions from carrying out banking operations as regular business.

However, by derogation from this general rule, the Treasury, the public trustee office (Caisse des Dépôts et Consignations) and the Banque de France may conduct banking operations, including the issuance and administration of means of payment, according to Article L518-1. Moreover, without prejudice to the specific provisions applicable to them, the prohibition for any entity other than a credit institution to carry out banking operations as regular business does not apply to undertakings governed by the Insurance Code, reinsurance companies, investment service providers, bodies collecting contributions paid by employers to finance construction programmes under the Construction and Housing Code or securitisation vehicles. Nor does this prohibition prevent an undertaking from issuing vouchers and cards for the purchase of a particular good or service from that undertaking (Article L511-7 of the MFC). Finally, exemptions may be granted to undertakings that issue or administer means of payment if these means of payment are accepted only (1) by undertakings having capital links with the issuer which confer upon one of these undertakings effective control over the others, (2) by a limited number of undertakings that are located on the same premises or in a restricted geographical area, or (3) by undertakings that

have close trade or financial links with the issuer.

Banking Directive 2000/12/EC and the Investment Services Directive, which recognises the free provision of investment services through the European passport, have been codified in the MFC, largely under Book 3 (relating to banking and investment operations) and Book 5 (relating to the statute of credit institutions and investment firms). These provisions include the mutual recognition of authorisation and prudential supervision, according to which the granting of a single licence is recognised throughout the Community and the principle of prudential supervision by the home Member State applies.

The issuance of electronic money is partly dealt with in Article L511-7 II of the MFC, which allows exemptions from authorisation where the maximum load capacity of the electronic device provided to holders is below a certain threshold. Most of the provisions concerning e-money are, however, contained in professional regulations<sup>1</sup> which define, in particular, what constitutes an e-money institution.

##### I.1.1.2 Legal basis for payment and securities settlement systems

Long before the entry into effect of the Settlement Finality Directive, the Act of 31 December 1993, now enshrined in Articles L330-1 and L330-2 of the MFC, abolished the “zero-hour rule” and the possibility of cancellation of payments made during the “suspect period” in payment systems. Following the implementation of this provision, and the subsequent amendments to Article L330-1 by way of the Order of 14 December 2000 and the Act of 15 May 2001, netting arrangements for payment and securities delivery and settlement systems are legally binding in the event that insolvency proceedings are opened against a system participant. Pursuant to the Settlement Finality Directive, the irrevocability of a transfer order must be laid down in the systems’

<sup>1</sup> CRBF No 2002-13.

rules, and the finality of payments and securities delivery and settlement in those systems cannot be legally challenged, even in the event of insolvency, provided that the systems fall under the legal definition stipulated by this Article.<sup>2</sup>

The legal basis for collateral arrangements in payment and securities settlement systems is formed by Article L330-2 of the MFC, as amended by the Acts of 2 July 1998 and of 15 May 2001, and by Articles L431-7 to L431-7-5, inserted in the MFC by the Order of 24 February 2005 transposing the Collateral Directive.

These Articles provide that the operating rules, the framework agreement or the model agreement governing any system referred to in Article L330-1 may require that the institutions participating in such systems provide collateral in order to secure settlement within the system. The eligible collateral is broadly defined (securities, certificates, bills, receivables or sums of money, etc.) and can be either domestic or foreign (i.e. issued in accordance with the provisions a foreign legal system), in which case the rights of the recipient of such collateral, when it is represented by a book entry, are determined by the law applicable at the place of its registration. The transfer of collateral is performed through a transfer either of full ownership or of a guarantee without any formal requirement to inform third parties, and is enforceable even in the case of insolvency (as defined in Book VI of the Commercial Code concerning reorganisation and bankruptcy proceedings or by the equivalent provisions instituted outside France), and/or in the event of civil execution proceedings. Article L330-2 also provides that, when the collateral is constituted within payment systems, such protection is extended to it pursuant to Article L431-7-3 of the MFC (legal regime for constituting collateral within payment systems) or through a “special allocation” which allows a wide variety of collateralisation procedures.

#### 1.1.1.3 Legal basis for oversight functions

The legislation adapting the Banque de France’s Statute to the provisions of the Maastricht

Treaty states that “the Banque de France shall ensure the smooth operation and the security of payment systems within the framework of the tasks of the European System of Central Banks relating to the promotion of the smooth operation of payment systems” (Article L141-4 of the MFC, as amended by Act 98-357 of 12 May 1998). This provision establishes payment systems oversight as an integral part of the Banque de France’s statutory tasks within the Eurosystem framework (see Section 1.2 of the euro area chapter). A provision introduced into this Article by way of Act 2001-1168 of 11 December 2001 has explicitly extended the scope of its statutory oversight mandate to encompass “the systems used to clear, settle and deliver financial instruments”.

The Banque de France’s regulatory role and oversight mandate in relation to means of

2 Article L330-I-1 of the Monetary and Financial Code states: “I. – An interbank settlement system or settlement-delivery system for financial instruments consists of a national or international procedure which organises relations between at least two parties having the status of a credit institution, an institution or company referred to in Article L518-1, an investment firm or a member of a clearing house or a non-resident institution having comparable status, which allows regular execution of payments, through clearing or otherwise, and, for settlement-delivery systems for financial instruments, the delivery of securities between the said participants. [...] [T]he system must either have been instituted by a public authority, or be governed by an agreement which complies with the general principles for market-wide or standardised agreements. The Minister for Finance notifies the European Commission of all systems falling under the scope of this Article.

In the event that insolvency proceedings are opened against a participant in an interbank settlement system or a settlement and delivery system for financial instruments of the European Economic Area, the rights and obligations deriving from its participation or linked to its participation in the said system are determined by the law which governs the system, as long as that law is the law of a European Economic Area member country.

II. – Notwithstanding any legislative provision to the contrary, payments and deliveries of financial instruments made within the framework of interbank payment systems or settlement and delivery systems for financial instruments cannot be cancelled in the event that an Order to commence insolvency proceedings is made against an institution participating directly or indirectly in such a system until the close of the day on which that Order is made, even on the grounds of such an Order being made.

III. – These provisions are also applicable to payment instructions and delivery instructions for financial instruments, given that they have acquired irrevocable status in one of the systems referred to in II. The time and conditions that determine whether an instruction is considered irrevocable in a system are defined by that system’s operating rules.”

payment was introduced into Article L141-4 by way of Act 2001-1062 of 15 November 2001, which provides that: “The Banque de France ensures that the means of payment as defined in Article L311-3, other than banknotes and coins, are secure and that the regulations applicable thereto are pertinent”.

## 1.2 THE ROLE OF THE BANQUE DE FRANCE

### 1.2.1 GENERAL RESPONSIBILITIES

The Banque de France’s activities have three main objectives:

- monetary stability, enabling the value of money to be maintained;
- financial stability, underpinned by a robust financial system and, in particular, by secure and efficient payment systems;
- the carrying out of public service and general interest tasks entrusted to the Banque de France by the state on behalf of private individuals, public administrations, enterprises and banks.

Within the framework of the Eurosystem, the Banque de France’s primary objective is to maintain price stability. By keeping inflation low, stable and predictable, the Eurosystem contributes to economic prosperity. Monetary stability underpins economic agents’ confidence in the euro. To this end, the Banque de France takes part, within the decentralised framework of the Eurosystem, in the preparation, implementation and explanation of the euro area’s monetary policy. It also ensures the quality of currency in circulation.

Financial stability benefits from monetary stability, which is a necessary but not sufficient prerequisite therefor. Financial stability also depends on the resilience of the financial sector and the smooth functioning of market infrastructures, in particular payment and securities systems. The Banque de France carries out regular assessments of the vulnerabilities of the financial system and

contributes to their removal. The objective of financial stability underpins several of the Banque de France’s tasks at the national level, in particular the authorisation and supervision of credit institutions and investment firms, the oversight of means of payment and payment systems and the assessment of the financial position of companies.

Lastly, the Banque de France is the institution in charge of the production and management of banknotes and coins. The Banque de France has been entrusted by the state with a range of specific tasks to be carried out on behalf of private individuals, regional and local authorities, enterprises and banks. The Public Service Contract signed with the state on 10 June 2003 defines the Banque de France’s obligations and lays down the conditions for access to the services it provides, as well as affirming its commitment to improving the quality of the services performed with regard to household overindebtedness and the monitoring of economic developments and regional labour pools.

### 1.2.2 PAYMENT SYSTEMS

Payment systems oversight forms an integral part of the Banque de France’s statutory tasks. It performs its duty of ensuring the “smooth functioning and the security of payment systems within the framework of the tasks of the European System of Central Banks relating to the promotion of the smooth operation of payment systems” by providing settlement services, implementing its oversight function and facilitating private sector initiatives which contribute to the safe and efficient functioning of payment systems.

For instance, in the field of interbank settlements these tools are used complementarily. As a payment and settlement services provider, the Banque de France owns and operates an interbank, large-value RTGS, TBF, which is a component of TARGET. When the Banque de France introduced TBF in 1997, it incorporated the key principles of payment systems risk management (such as intraday irrevocability of



large-value payments) into an infrastructure which constitutes the backbone of the entire French payment landscape.

As overseer, the Banque de France performed an assessment of the French systemically important payment systems – including TBF and PNS (both large-value payment systems) – between 2003 and 2004, and of SIT, the systemically important retail payment system, in 2005. These systems were assessed against the Core Principles for Systemically Important Payment Systems.

### 1.2.3 PAYMENT INSTRUMENTS

In addition, in the field of payment instruments, the Banque de France has a legal oversight mandate in accordance with Article L141-4 of the MFC. This mandate extends to all non-cash means of payment and applies to all payment service providers that issue or administer these means of payment, as well as their potential outsourced entities.

To fulfil its mandate, the Banque de France has developed a threefold *modus operandi*, whereby it (i) sets the security objectives with which payment service providers must comply when pursuing the relevant activity, and then (ii) ensures that these objectives are indeed observed through evaluation. This evaluation is based on relevant information reported by payment service providers (off-site evaluation) and (iii) on evaluations carried out on-site:

(i) A number of security objectives have been defined. First, a security referential on cheques was published in July 2005. Based on a model of all the processes involved in payments by cheque, from the fabrication of the cheques and their personalisation to their storage and destruction, including any treatment and exchange of payment orders (in a truncated manner), this security referential develops a risk analysis on the basis of which security objectives have been deduced. The Banque de France aims to remain technologically neutral and does not interfere with the means that

payment service providers choose to fulfil these objectives.

A protection profile has also been defined in collaboration with the Financial Markets Authority (Autorité des Marchés Financiers; AMF) and the banking sector for online banking, including online transfers. Certified in October 2004, this document sets the security objectives which apply to credit institutions and investment firms when providing payment services online for consumers or businesses. In particular, it urges them to develop rigorous authentication procedures in order to ensure higher levels of protection for the parties involved in such transactions.

In addition, the electronic money systems security objectives are used within the Eurosystem as a common reference for the evaluation of e-money systems (either card-based or server-based). Other security analyses are currently under consideration within the Eurosystem – e.g. for payment cards.

(ii) In addition, in order to assess whether, once set, these security requirements are indeed met by the banks, the Banque de France may, in accordance with Article L141-1 of the MFC, “obtain from the issuer or another party involved the relevant information concerning the means of payment and the terminals or other technical devices associated therewith”. It has thus developed, in collaboration with the Banking Commission (Commission Bancaire; CB), an annual reporting framework for such means of payment. A questionnaire has been specifically elaborated for cheques with a view to assessing compliance with the security referential mentioned above. Moreover, statistics are collected in order to gain a deeper understanding of the sector.

(iii) In addition to this document-based evaluation, the Banque de France may, as mentioned above, also carry out on-site evaluations.

Moreover, according to the same article of the MFC, “if it considers that any [...] means of payment offers insufficient guarantees of security, it may recommend that its issuer take all appropriate measures to remedy the situation. If such recommendations are not followed, it may, having obtained the issuer’s observations, decide to draft a negative opinion for publication in the Official Journal”.

In addition to its oversight mission, and as part of the prevention system established by the Act on cheque and payment card security of 30 December 1991, the Banque de France is also in charge of holding two national registers: the Central Cheque Register (Fichier Central des Chèques; FCC), which stores centralised information on cheque payment incidents and the resulting bank-imposed and court-ordered cheque-writing bans and to which credit institutions are given access prior to the issuing of a cheque book or to the granting of a loan; and the National Register of Irregular Cheques (Fichier National des Chèques Irréguliers; FNCI), which records all incidents relating to the soundness of cheques drawn on a bank account and which allows anyone who receives a cheque by way of payment to obtain information on whether or not the cheque is sound.

#### 1.2.4 SECURITIES CLEARING AND SETTLEMENT SYSTEMS

Pursuant to Article L141-4 of the MFC, the statutory competence of the Banque de France covers securities clearing and settlement systems. Well-designed and efficient securities clearing and settlement systems are important for the stability of the financial system. Securities clearing systems, such as LCH. Clearnet S.A (see Section 4 below), aim at covering any counterparty risk which may hamper the settlement of market transactions. The main function of securities settlement systems, such as the RGV2 irrevocable channel and the RGV2 revocable channel (see Section 4 below), is to ensure DvP settlement of securities transactions. The RGV2 revocable channel mainly effects the settlement of securities

transactions conveyed by the Paris stock exchange. OTC securities transactions are mainly settled in the RGV2 irrevocable channel, which also ensures the delivery of collateral used in Eurosystem credit operations. The real-time processing of transactions executed via the RGV2 irrevocable channel and final DvP meets the aim of ensuring the security and efficiency of securities settlement. With regard to the RGV2 revocable channel, a dedicated guarantee fund has been established to mitigate the settlement risk.

By contrast with large-value payment systems, securities settlement systems are neither owned nor operated by the Banque de France, which acts as settlement agent.

Between 2003 and 2005 the Banque de France, as overseer, assessed the French securities clearing and settlement systems against the CPSS-IOSCO Recommendations on securities settlement systems and on securities clearing systems.

### 1.2.5 COOPERATION WITH OTHER INSTITUTIONS

#### 1.2.5.1 Relations with the ESCB; international and bilateral relations

##### *ESCB*

As a national central bank (NCB) of an EU and euro area member country, the Banque de France is part of the European System of Central Banks (ESCB) and of the Eurosystem. The ECB’s Governing Council is the supreme decision-making body of the ESCB. It comprises the governors of the euro area countries, including the Governor of the Banque de France, and the members of the ECB’s Executive Board, including the President and the Vice-President of the ECB. The Governing Council defines the monetary policy for the euro area and establishes guidelines for its implementation. It takes the relevant decisions on conducting foreign exchange operations, holding and managing the ECB’s official foreign exchange reserves and promoting the smooth functioning of payment systems.

The Eurosystem is a decentralised system. Each national central bank implements monetary policy in a decentralised way in its own economy, in accordance with the rules established by the Governing Council.

The ESCB has set up a network of 14 committees, comprising representatives of the NCBs and the ECB, which provides assistance to the ECB's decision-making bodies. These committees play an important role in preparing the decisions of the Governing Council and greatly contribute to the cooperation between central banks in their respective fields of responsibility.<sup>3</sup>

#### *International and bilateral relations*

The Banque de France takes part in the major international discussions within various bodies. The Governor of the Banque de France is Alternate Governor for France of the International Monetary Fund (IMF) and participates in the meetings of the International Monetary and Financial Committee (IMFC) and in the annual meeting of the IMF. The Banque de France takes part in the work of the G7<sup>4</sup>, and the Governor of the Banque de France is a member of the G10<sup>5</sup>. In addition, the Banque de France takes part in meetings of the G20<sup>6</sup> and is a founder of the Bank for International Settlements (BIS). In the context of the activities of the G10 central banks, it contributes to the work of the different committees<sup>7</sup>.

The Governor and/or representatives of the Banque de France participate in the economic and financial bodies of the European Union, in particular in the informal meetings of the ECOFIN Council and the meetings of the Economic and Financial Committee.

The Banque de France also takes part in the discussions and tasks of many international and regional institutions, such as the Financial Stability Forum (FSF), the Organisation for Economic Co-operation and Development (OECD) and multilateral development institutions. The Governor of the Banque de France participates in the meetings of the Franc

Area Ministers for Finance, for which the Banque de France provides the secretariat.

The Banque de France participates in the work of EU enlargement and offers training and technical assistance to central banks of acceding countries, the Franc Area, the Middle East and the Far East, etc.

#### **1.2.5.2 Cooperation in the field of oversight of cross-border systems**

The Banque de France is involved in overseeing international and multi-currency infrastructures and settlement systems for settlements in euro, such as CLS and Euro1, as well as infrastructures and service providers whose smooth functioning is essential for the payment systems that use them, such as the message transport network SWIFT. A memorandum of understanding (MoU) has been signed with SWIFT's lead overseer, the Nationale Bank van België/Banque Nationale de Belgique, setting out the terms and conditions for its oversight.

The Banque de France has also signed MoU with the authorities responsible at the national or international level for the supervision or oversight of cross-border systems:

– the integration of central counterparty clearing services for Euronext markets within LCH.Clearnet SA was accompanied by the signing of an MoU between the oversight, regulatory and supervisory authorities of the countries concerned (Belgium, France, the Netherlands and Portugal). Following the LCH.Clearnet Group merger in 2004, an MoU was concluded between the authorities above and their UK counterparts (the Financial Services

3 Internal audit, banknotes, budget, communication, accounting and monetary income, legal issues, market operations, monetary policy, international relations, statistics, banking supervision, information systems, and payment and settlement systems.

4 Comprising Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

5 Comprising the G7 and Belgium, the Netherlands, Sweden and Switzerland.

6 Comprising the G7 and the major emerging countries.

7 Committee on Payment and Settlement Systems (CPSS), Basel Committee for Banking Supervision (BCBS), Committee on the Global Financial System (CGFS).

Authority and the Bank of England). In addition, LCH.Clearnet SA and the Italian central counterparty Cassa di Compensazione e Garanzia (CC&G) cooperate by offering common central counterparty services to their respective members. As a result, the French and Italian authorities responsible for the regulation, supervision and oversight of both LCH.Clearnet SA and CC&G signed an MoU in early 2003.

– the integration of the Euroclear Group around the Belgian, British, Dutch and French central securities depositories and the international depository Euroclear Bank led the central banks and national regulatory authorities to establish a cooperation framework on the basis of an MoU concluded in 2005. This took account of the reorganisation of the group and the setting up of a new parent company, Euroclear SA.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

#### 1.3.1 INSTITUTIONS PROVIDING PAYMENT SERVICES

As explained above, these institutions are primarily credit institutions. According to Article L311-1 of the MFC, the provision to customers or administration of means of payment are indeed considered banking operations which may only be carried out as regular business by credit institutions.

However, in accordance with several legally defined derogations from this general principle, the Treasury's paying officers also manage bank accounts and carry out a number of banking operations. The Caisse des Dépôts et Consignations and its subsidiaries fulfil public interest functions in support of the public policies pursued by France's central, regional and local governments and may engage in competitive activities. More specifically, it is responsible for: the management of regulated deposits and consignments; the protection of savings collected from the public; the financing of social housing and the management of pension funds; and contributing to local and national economic development. Usually

included in these derogations, the Post Office's financial arm was, however, integrated into the category of credit institutions in 2006, following the reform of its statute. Some derogations have also been established for specific sectors, as is the case for meal vouchers and services vouchers.

Following the merger and consolidation process within the financial sector, there were a total of 899 such institutions at the end of 2004 (as opposed to 1,102 in 2000), of which 55 were branches of credit institutions incorporated in the European Economic Area and 27 branches of credit institutions incorporated in third countries.

#### 1.3.2 REPRESENTATIVE BODIES

Credit institutions are collectively represented in their relations with the public authorities through a two-tier system.

First, they belong to one of the relevant professional bodies, namely the French Banking Federation (Fédération Bancaire Française; FBF) for banks or the Finance Companies Association (Association des Sociétés Financières; ASF) for financial companies.

The FBF represents over 500 commercial, cooperative and mutual banks operating in France. Its tasks include analysing and making proposals in respect of any issues concerning the profession at the national and international levels, the provision of an information service to its members and the conduct of public relations activities in order to enhance the public's perception of banks and the role they play in the economy.

The ASF represents credit institutions licensed as financial companies and specialised credit institutions authorised under a category other than that of finance companies, i.e. investment firms or market undertakings, or branches of specialised credit institutions, investment firms or foreign financial establishments authorised to conduct business in France (410 members in total).

Second, these professional bodies are in turn affiliated to the French Association of Credit Institutions and Investment Firms (Association Française des Établissements de Crédit et des Entreprises d'Investissement; AFECEI), which represents the interests of all credit institutions and investment firms vis-à-vis the authorities. It provides information to its members and to the public, studies all issues of common interest and elaborates relevant recommendations to foster cooperation between networks and the organisation and management of services of common interest. It may also engage in social dialogue with trade union representatives from this sector.

### 1.3.3 REGULATORY AND SUPERVISORY AUTHORITIES

Having previously been devolved to a Banking and Financial Regulation Committee (Comité de la Réglementation Bancaire et Financière; CRBF), the power to issue the general rules and regulations applicable to credit institutions and investment firms was returned to the Ministry of Finance in 2003. The Ministry must seek the opinion of a consultative committee (the Comité Consultatif de la Législation et de la Réglementation Financières; CCLRF) on any texts (laws, regulations, European texts) relevant to the banking, finance and insurance sectors.

The Credit Institutions and Investment Firms Committee (Comité des Établissements de Crédit et des Entreprises d'Investissement; CECEI) is the authority responsible for granting individual licences and authorisations to credit institutions and investment firms. The CECEI is also in charge of managing the procedures relating to the European passport, which allows such institutions and firms to provide services throughout the European Economic Area. The Committee is chaired by the Governor of the Banque de France.

The Banking Commission, which is also chaired by the Governor of the Banque de France, is responsible for the supervision of credit institutions and investment firms. It has

statutory powers to take disciplinary action against any breach of the laws and regulations applicable to them. It examines the operations of credit institutions and monitors the soundness of their financial condition both through periodic returns filed by credit institutions and through on-site supervision.

The Autorité des Marchés Financiers has responsibilities in respect of regulated markets and the establishment and monitoring of compliance with rules related to the provision of investment services and to securities markets (see Section 4).

### 1.3.4 OTHER ENTITIES

In 2003 the Financial Sector Consultative Committee (Comité Consultatif du Secteur Financier; CCSF) replaced the National Credit and Securities Council (Conseil National du Crédit et du Titre; CNCT) and the Insurance Consultative Committee of the National Insurance Council (Commission consultative de l'assurance du Conseil national des assurances). The CCSF is in charge of formulating operational recommendations for improving relations between the banks and insurance companies and their clients. In particular, it announced, in 2004, 15 specific measures for meeting customers' expectations vis-à-vis their banks, the proper implementation of which would be monitored.

In addition, an Observatory for Payment Card Security was created in 2001. Chaired by the Governor of the Banque de France, this is composed of members of parliament, representatives of the authorities concerned, payment card issuers and merchants' and consumers' associations. Its responsibilities are threefold: (i) to monitor the implementation of measures adopted by issuers and merchants to strengthen payment card security; (ii) to compile statistics on fraud on the basis of the relevant information disclosed by payment card issuers to the secretariat of the Observatory; and (iii) to monitor technology in the payment card field, with the aim of proposing ways of combating technological attacks on the security

of payment cards. The Observatory's secretariat function is performed by the Banque de France. It drafts the Observatory's annual report, which is submitted to the Minister for the Economy and Finance and then to parliament.

Other entities have been established for the purpose of studying, discussing and coordinating the development of the payment systems infrastructure, both in general terms and in terms of technical change and standardisation.

The French Committee for Banking Organisation and Standardisation (Comité Français d'Organisation et de Normalisation Bancaires; CFONB) has set up a number of working groups to study and promote the simplification of banking operations and the codification of the methods and documents used by the banks.

A number of associations and economic interest groups also intervene in the field of payment systems: the SWIFT Users Group in France (Groupement des Utilisateurs SWIFT en France; GUF), which is a forum in which French banks elaborate proposals regarding SWIFT policy and projects; the interbank automated clearing group (Groupement pour un système interbancaire de télécompensation; GSIT), which is in charge of managing the interbank teleclearing system SIT on behalf of the banking community; and the Bank Card Consortium (Groupement des Cartes Bancaires; GCB), which is responsible for organising and managing the Banking Services Network (Réseau de Services Bancaires; RSB).

Lastly, the Centre for Interbank Funds Transfers (Centrale des Règlements Interbancaires; CRI), which is currently owned by nine credit institutions and the Banque de France, plays three different roles: first, it acts as a forum for the analysis of issues in the field of large-value payment systems; second, it is the operator of the single platform carrying SWIFT messages for both TBF and PNS (see Section 3); and, lastly, it owns and operates the PNS system (see Section 3.3).

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The banknotes and coins used in France are euro, issued within the euro area.

### 2.2 NON-CASH PAYMENTS

The use of non-cash payment instruments is traditionally very widespread in France. In 2005 the average number of transactions was 228 transactions per person.

#### 2.2.1 CREDIT TRANSFERS

Credit transfers are mainly used for payments by companies, government agencies and local authorities, but rarely by individuals.

At 2,408 million operations in 2005, accounting for 16.87% of all payment transactions, this instrument ranked fourth – behind card payments, cheques and direct debits – among the payment instruments used in France in terms of the number of transactions.

The average value of credit transfers made in that year was €5,590. However, this included only credit transfers executed for clients but not credit transfers between banks.

The interbank exchange of all credit transfers now takes place in paperless form. Ordinary transfers are settled on the day of presentation, while credit transfers for payment on a due date (which remain rare) are presented two to three days in advance of interbank settlement.

#### 2.2.2 CHEQUES

Cheques used to be the most widely used payment instrument in France, largely on account of the fact that they are easy to use, either for remote payments or face-to-face transactions, and free of charge for the drawer.

Following a steady decline in its relative share in cashless payments, this instrument no longer enjoys such prominence. With approximately 3,916 million cheques being used in 2005, this



instrument accounted for 27.4% of the total number of transactions.

However, the average value of cheques remains very high (€555 in 2005), attesting to the continuing importance of cheques for the economy.

Moreover, cheques have followed the general trend towards dematerialisation of payment instruments. Since 2001 French cheques have been truncated, with only 1.6% of cheques now circulating physically.

### 2.2.3 DIRECT DEBITS

Since their introduction in 1955, direct debits have been very successful. Over 2.5 billion direct debits were exchanged in 2005, with an average value of €360 per transaction. They accounted for 17.6% of payment transactions processed in the course of that year.

They are generally used for recurrent payments such as electricity, gas, telephone, insurance and water bill payments, and for monthly income tax payments. Direct debits offer advantages to banks (in that processing costs are relatively low thanks to automation), utility companies (by simplifying their accounting administration) and individuals (by simplifying payment).

Initiators of direct debits must be approved by a bank. They must also obtain signed authorisation from the payer, which is then sent to the payer's bank. Before transmitting the direct debit order to its bank for collection, the initiator must notify the payer of the amount and date of the debit (by sending an invoice, for example) to enable the latter to ensure that there are sufficient funds on its account or to contest the order if it so wishes.

In addition to this general type of direct debit, two other instruments are available to users: interbank payment orders (Titres Interbancaires de Paiement; TIPs) and telepayments, which have grown steadily since their introduction.

### 2.2.4 CARD PAYMENTS

There are many types of card available on the French market. First, there are payment cards issued by credit institutions or other assimilated entities that enable their holder to withdraw or transfer funds (according to the definition provided in Article L132-1 of the MFC).

These cards may be four-party cards if the institution that issues the cards is not the same as that acquiring the card transactions. These interbank cards are mainly represented in France by the GCB, very often co-branded with Visa or MasterCard.

There are also three-party cards where the same institution issues the cards (for the holders) and acquires the card transactions from the merchants. Such cards may be international (e.g. American Express, Diners Club) or national, as is the case with some credit cards (e.g. Cofinoga and Cetelem).

Lastly, by derogation from the banking monopoly, a single-purpose card may be issued by an undertaking if it is accepted as means of payment by that undertaking only or by a limited number of acceptors that have financial and commercial links with the issuer. There are a large number of such "store cards" in France.

### 2.2.5 FOCUS ON INTERBANK CARDS

The data presented below currently refer only to interbank cards.

There were more than 51 million interbank cards in circulation in 2005 and around 44 million three-party cards. 81.9 million of these cards had a cash function and 78.8 million had a payment function (the majority of cards having both of these functions). 22.3 million interbank cards had an e-money function, but less than 1 million were active.

Cards are now systematically equipped with a microprocessor, resulting in an exceptionally low level of card fraud at the national level (0.029% of the value of transactions in 2005).

The Banking Services Network is used for the transmission of authorisations for withdrawals and payments. This real-time network enables an ATM or a POS terminal to obtain authorisation from the bank which has issued the card. This authorisation also means that the payment is guaranteed for the beneficiary. Moreover, card transactions have been processed through SIT (see Section 3.4.1) since the second half of 1995.

In 2005 such cards, which were used for 5,243 million transactions (i.e. 36.7% of the total number), constituted the most widely used payment instrument, thereby continuing the upward trend of the last few years. However, they are used for smaller transactions than cheques or direct debits. The average value of a card payment amounts to €50.

These cards must meet the technical and security standards set by the GCB. The interoperability of bank cards facilitated by these standards has been the main driving force behind the development of debit cards in France.

#### *ATM and POS networks*

By the end of 2005 47,827 ATMs had been installed nationwide. In addition, there were more than 1 million POS terminals in operation. ATMs and POS terminals are interoperable.

#### **2.2.6 OTHER PAYMENT INSTRUMENTS**

Approximately 181 million transactions involved other payment instruments such as bills of exchange and promissory notes in 2005 (less than 1.4% of the market).

### **2.3 RECENT DEVELOPMENTS**

Beyond these traditional means of payment, new developments have recently taken place on the market. Two main trends may be identified.

The first concerns cards. While the electronic money purse used to be based on solutions whereby the monetary value was stored on the device, an increasing number of products use

cards only as a tool for accessing prepaid accounts held centrally with the issuer.

The former type of product is still present, largely in the form of Moneo cards (general-purpose e-purses). The electronic money used with these cards is issued by the Société Financière du Porte-monnaie Électronique Interbancaire (SFPMEI), whose role is to collect and manage the funds received in the issuing process. The SFPMEI also defines the security requirements (technical and organisational) for the schemes and ensures that they comply with these requirements on an ongoing basis. It guarantees that the e-money issued by the schemes can be redeemed by all e-money holders.

In recent years, however, other cards based on accounts have developed more rapidly on the market. These reflect an important trend in France, namely that traditional paper-based products, such as traveller's cheques or gift cheques, are increasingly tending to be offered on electronic devices, such as cards. Traveller's cards (modelled on traveller's cheques) and gift cards (modelled on gift vouchers) have thus been issued by banks, stores and third-party card schemes.

The second trend is towards the use of new devices for payments. The number of payments via the internet or by mobile telephone is thus increasing rapidly. Even if no data are as yet available, server-based solutions (such as PayPal) that enable internet transactions from a dedicated account held centrally with the issuer are becoming more and more popular. The market for prepaid cards for payments on the internet also appears to be taking off, with several cards now being offered on the French market.

Mobile telephone operators are currently also in the process of developing new payment solutions through mobiles in France (contactless solutions). Some experiments have already taken place in Normandy, and the first non-

experimental services are expected to commence in 2007.

- the hybrid system PNS, managed and operated by the CRI, an interbank body owned by ten banks.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

The current structure of the French payment systems (excluding SSSs) consists of one retail payment system and two large-value payment systems.

The retail system operating in France consists of an automated clearing house, SIT, which is managed and operated by the GSIT.

Large-value operations are processed in two systems:

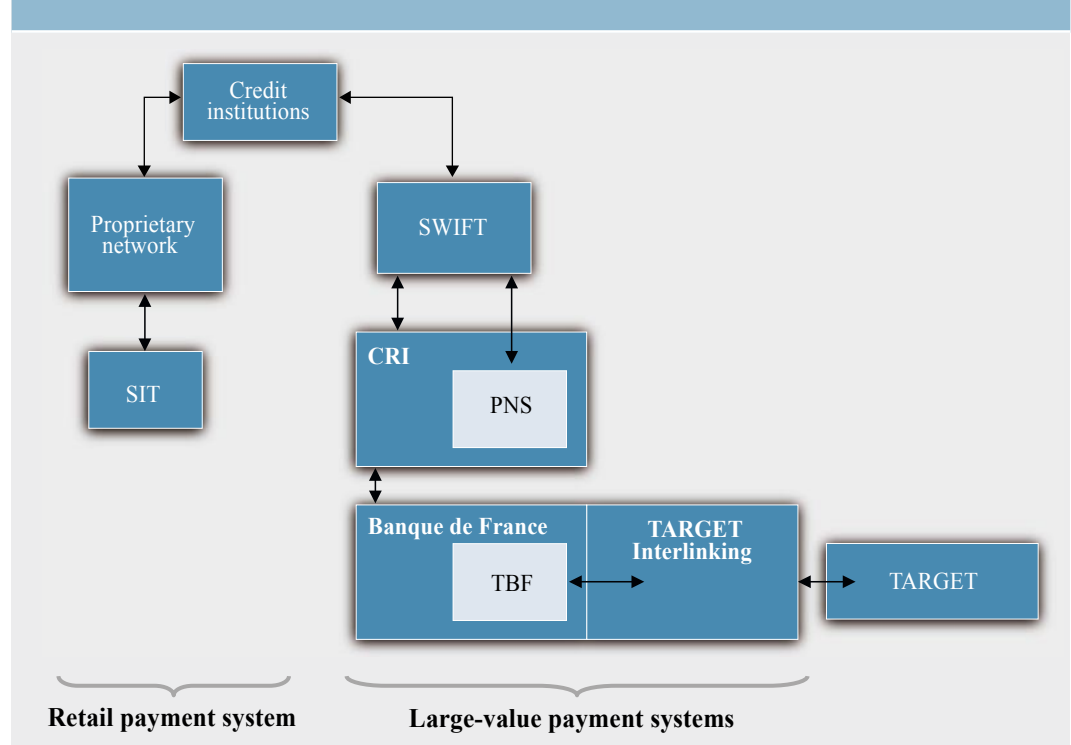
- the RTGS system, TBF, which is the French component of TARGET and is managed and operated by the Banque de France; and

In TBF and PNS, settlement takes place on an operation-by-operation basis, while in SIT, the balances resulting from a business day's operations are settled on a net basis through the accounts held by participants in TBF.

#### 3.2 THE FRENCH REAL-TIME GROSS SETTLEMENT SYSTEM: TRANSFERTS BANQUE DE FRANCE

The French RTGS system, TBF, began operations in French francs on 27 October 1997 and switched to the euro upon the launch of TARGET on 4 January 1999. It has been designated a system under the provisions of the Settlement Finality Directive, and it benefits from Article L330-1 of the MFC relating to the irrevocability of orders and the finality of payments within a system. The Banque de France manages the account relationship with

Chart



TBF participants and the operation of the TBF system, while the CRI ensures the routing and validation of payment and information messages exchanged within the system.

### 3.2.1 OPERATING RULES

Like the other RTGS systems connected to TARGET, TBF complies with the minimum common features set forth in the TARGET Guideline (see Section 3.1.1 of the euro area chapter).

Additional rules related to the service level, accounting structure, liquidity provision, pricing policy and the respective liabilities of participants and the Banque de France as system operator are set forth in the agreement signed by each TBF participant (see Section 3.2.2).

### 3.2.2 PARTICIPATION IN THE SYSTEM

The TBF system is open to:

- credit institutions incorporated or established in France;
- institutions governed by Article L511.1 of the MFC (public sector financial institutions);
- investment firms incorporated or established in France, provided that they are licensed for activities requiring direct access to an RTGS system and authorised to be a custodian on behalf of customers;
- credit institutions incorporated in an EEA country and benefiting from the European passport;
- investment firms incorporated in an EEA country and benefiting from the European passport, provided that they are licensed for activities requiring direct access to an RTGS system; and
- branches established in an EEA country of credit institutions incorporated in third countries.

By the end of 2006 130 institutions were participating in TBF directly, and 30 indirectly.

Participants are obliged to sign an agreement with the Banque de France.

In addition, each settlement account belongs to a group of accounts, which may consist of a single or several settlement accounts. The balance on a group of accounts must always be positive. The grouping of settlement accounts is left up to the participants, within the framework of the following rules:

- a participant must hold all of its settlement accounts within one single group of accounts; and
- within a group of accounts, all settlement accounts must be held by entities belonging to the same banking group.

Finally, an applicant's technical ability to operate in the system must be positively assessed by the CRI against a set of specific criteria, such as the ability to send correctly formatted payment messages and information requests, the existence of a database recording all operations and the ability to fall back on a remote backup site in the event of an incident on the primary site.

A participant may leave the system by giving 40 working days' notice. Furthermore, the Banque de France may exclude a participant from the system without notice if it no longer meets the statutory criteria or if its financial situation or behaviour is deemed to jeopardise the system's security and efficiency.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The use of TBF is mandatory for the settlement of:

- monetary policy transactions;
- ancillary systems (the RGV2 SSS (see Section 4.3.2), the PNS system (see

Section 3.3), the clearing system and the retail system);

- domestic and cross-border interbank and customer operations;
- real-time liquidity transfers to and from the PNS system and the RGV2 irrevocable channel, which function in real time and in central bank money; and
- the euro part of exchange operations for TBF participants taking part in CLS (since 9 September 2002).

Interbank and customer payments can only be originated by the holder of the debited account, with the exception of the Banque de France, which can originate operations by debiting other participants' accounts. Payments may not be cancelled once transmitted to the system.

TBF participants can issue time-designated payments by specifying the time of day at which they wish their payment to be checked for settlement.

#### 3.2.4 OPERATION OF THE SYSTEM

TBF is open every day except Saturdays, Sundays and TARGET closing days (see Section 3.1.4 of the euro area chapter). Its operating hours are from 7 a.m. to 6 p.m. CET.

In addition, TBF provides for an adjustment period between 6 p.m. and 6.45 p.m. CET. First, it closes to new transactions and rejects those still pending in queues. Each participant then receives a notification of its balance(s) on the account(s) which it holds. From the reopening of TBF at 6.15 p.m. CET until the definitive statement of accounts at 6.45 p.m. CET, participants have the opportunity to even out their settlement account balances if necessary. To that end, they may transfer funds between settlement accounts held within the same group of accounts.

#### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

TBF uses the SWIFT network and message formats (MT 202 for interbank payments and MT 103/MT 103 STP for customer payments).

SWIFT class 9 message types are also used to convey information and requests concerning account balances, the announcement of central bank operations and settlement of ancillary systems, and system management (start and end of the day, incident on a TARGET component, etc.).

Payment messages are processed using a Y-shaped message flow structure. When a participant issues a TBF payment message, SWIFT forwards an extract from the payment message to the CRI technical platform, which transmits it to TBF. After checking the extract against settlement criteria, TBF sends back a notification bearing one of the following status readings: executed, queued or rejected. This notification is forwarded to both sending and receiving participants; simultaneously, the original payment message is sent to the receiver, if executed, or returned to the sender, if rejected.

TBF's processing functions and data are replicated on a remote site for business continuity purposes.

#### 3.2.6 SETTLEMENT PROCEDURES

##### *Standard settlement*

- As in other RTGS systems, TBF payments are processed one by one on a continuous basis. Payments are settled with immediate finality in central bank money, provided that the balance on the group of accounts to which the debited settlement account belongs exceeds the amount of the payment.

Payments that do not meet one of these criteria are queued and subject to further settlement attempts. TBF manages two queues:

- a high priority queue for monetary policy operations, end-of-day settlement of ancillary systems, CLS pay-in and cancellation requests; and
- a standard priority queue for other transfers.

Account balances and queues are considered at the level of groups of accounts. When a payment is credited to a participant's account, the system attempts to settle payments queued in its group of accounts, in accordance with its balance and on a FIFO basis within each priority level.

Time-designated payments are processed in the same way as other payments, but are tested against settlement criteria at the time specified by the sender and not immediately after issuance.

#### **TARGET payments**

Outgoing TARGET payments are processed in two stages. They are first processed like standard domestic payments: if the settlement criteria are met, TBF debits the sending bank's account and credits a specific settlement account (the Banque de France holds one settlement account per country connected to TARGET). Once this payment is executed, the Banque de France's TARGET platform issues a settlement request to the NCB holding the beneficiary account, using the standard Interlinking procedures (see Section 3.1.6 of the euro area chapter). With regard to incoming cross-border payments, once the Banque de France's TARGET platform receives the settlement request from the sender NCB, the Banque de France's settlement account for this NCB is debited and the beneficiary bank's account is credited.

#### **Settlement of ancillary systems**

The settlement cycle for ancillary systems begins with a confirmation period in order that participants have time to check the balances announced by the ancillary system and, if necessary, raise the funds needed to cover their debits. In the event that a participant does not

agree with its end-of-day balance, the ancillary system manager must investigate and, should an agreement not be reached by the end of the confirmation period, the balances arising from the ancillary system must be reissued to TBF as soon as possible after reconciliation.

Thereafter, settlement occurs either independently for each participant if all balances are held vis-à-vis a central counterparty or on an "all or nothing" basis if each participant's balance is the sum of its debits and credits vis-à-vis all of the other participants in the system. In the latter case, the end-of-day settlement routine checks that all negative balances in the ancillary system can settle simultaneously according to the settlement criteria. If this is not the case, the whole system is queued and is subject to further settlement attempts during its settlement period.

#### **Optimisation mechanisms**

TBF runs two optimisation mechanisms:

- Global optimisation: when a payment is queued, the system computes a virtual balance for each group of accounts, which is the sum of the actual balance and incoming/outgoing queued payments for this group of accounts. If all virtual balances are positive, all queued payments are settled. Otherwise the system makes the same attempt, but considers only "high-priority" virtual balances (sum of the actual balance and incoming/outgoing high-priority queued payments); if these virtual balances are all positive, all high-priority payments are settled.
- Simulation of ancillary systems: this process is launched every 210 seconds when there are one or more multilateral ancillary systems pending in queues. For each group of accounts, the system computes a virtual amount of liquidity, which is the sum of the actual balance and positive balances in queued ancillary systems. The system then scans through the outgoing queues of each group of accounts and checks which



operations can be settled with the virtual liquidity. This process is iterative, because the operations for which the settlement is simulated are credited to other groups of accounts, which in turn allows for the simulated settlement of operations pending in their queues. If there are no other ancillary systems pending in queues at the end of the process, all simulated operations are settled; otherwise, balances and queues return to their initial situation.

### 3.2.7 CREDIT AND LIQUIDITY RISK

As in other RTGS systems, TBF settlement occurs in central bank money and with immediate finality. The debiting of the sending bank's account and the crediting of the receiving bank's account occur simultaneously, so that funds are available to the latter bank in an unconditional and irrevocable manner as soon as the payment is settled. Thus, participants are not exposed to credit and liquidity risks. The provision of liquidity in TBF complies in full with the framework defined at the Eurosystem level (see Section 3.1.7 of the euro area chapter), which aims to provide unlimited and free-of-charge collateralised credit to RTGS participants in order to ensure the smooth processing of payments. TBF participants can obtain liquidity either through intraday repos or by using intraday secured loans. This latter mechanism allows banks to obtain intraday credit in exchange for the transfer of good-quality private claims to the Banque de France.

### 3.2.8 PRICING

TBF's pricing structure consists of an annual fee and a transaction fee. The transaction fee for domestic payments is the same for all participants, regardless of the volumes which they process through the system; for TARGET payments a regressive transaction fee is applied. The annual fee encompasses access to both TBF and PNS and depends on the number of settlement accounts held within the TBF group of accounts to which the participant belongs.

Furthermore, new participants in the system pay an entry fee and a technical certification fee.

### 3.2.9 STATISTICS

In 2006 a monthly average of 204,660 cross-border transfers and 176,830 domestic payments were submitted to TBF. The average daily transaction volume was 9,630 for the cross-border component and 8,320 for the domestic component, while the average daily value was €107 billion and €423 billion respectively. In 2006 the highest daily transaction volume was 17,030 for cross-border payments and 24,987 for domestic payments, and the highest daily transaction values were €158 billion and €743 billion respectively.

## 3.3 THE FRENCH LARGE-VALUE PAYMENT SYSTEM: PARIS NET SETTLEMENT

PNS went live on 19 April 1999 and replaced the *Système Net Protégé* (SNP), which had been operating since 1997. It has been designated a system under the provisions of the Settlement Finality Directive (Directive 98/26/EC), and it benefits from the provisions of Article L330-1 of the MFC relating to the irrevocability of orders and the finality of payments within a system. It is operated and managed by the CRI. PNS, which settles in central bank money, can be defined as a hybrid settlement system, as it offers netting mechanisms, while transactions are settled on a real-time basis.

### 3.3.1 OPERATING RULES

The PNS system is open every day except Saturdays, Sundays and TARGET closing days. Its operating hours are from 8 a.m. to 4 p.m. CET.

In order to feed liquidity in central bank money into the system, PNS participants are required to make a transfer from their TBF settlement account to their position in PNS at the opening of the system. The minimum amount of this initial transfer is €15 million.

When the system closes at 4 p.m. CET payments still pending in queues are rejected, and the balances of PNS participants are transferred to their TBF settlement accounts. Because PNS payments can only be settled if the debited participant's liquidity is sufficient, balances in PNS are structurally positive, and the end-of-day settlement in TBF always results in credits to the participants' settlement accounts.

### 3.3.2 PARTICIPATION IN THE SYSTEM

PNS is open to the same categories of institution as TBF (see Section 3.2.2). In 2006 16 credit institutions participated directly in PNS. Participants must sign an agreement with both the CRI and the Banque de France. The latter agreement governs the rules for the settlement account which a participant holds with the Banque de France in order to fund its PNS position with central bank money.

An applicant's technical ability to operate in the system must be positively assessed by the CRI against a set of specific criteria, such as the ability to send correctly formatted payment messages and information requests, the existence of a database recording all operations and the ability to fall back on a remote backup site in the event of an incident on the primary site.

The withdrawal and exclusion of participants are subject to the same rules and criteria as apply to TBF (see Section 3.2.2).

### 3.3.3 TYPES OF TRANSACTION HANDLED

PNS is a credit transfer system, which means that payments can be issued only by the holder of the debited account. It processes customer and interbank payments and liquidity transfers to and from TBF. The value of payments processed is not subject to upper or lower limits.

### 3.3.4 TRANSACTION PROCESSING ENVIRONMENT

PNS operates in an environment similar to that of TBF (see Section 3.2.5). It uses the SWIFT network and message formats and the Y-shaped message flow structure.

PNS has a real-time link with TBF to allow the processing of liquidity transfers between the two systems. A participant wishing to move liquidity from PNS to TBF must send a PNS payment to the account that the Banque de France holds in the system; once settled, this payment automatically triggers a TBF transfer from the Banque de France's PNS settlement account to this participant.

Conversely, a TBF-to-PNS transfer consists of two steps: a TBF payment from the participant to the Banque de France's PNS settlement account, which, once settled, triggers a PNS payment from the Banque de France to the participant. PNS processing functions and data are replicated on a remote site for business continuity purposes.

### 3.3.5 SETTLEMENT PROCEDURES

PNS payments are processed one by one on a continuous basis. Each transaction which meets the following criteria is settled immediately:

- the balance on the sender's account exceeds the amount of the payment;
- the balance of exchanges between sender and receiver is lower than the bilateral limit defined by the sender vis-à-vis the receiver; and
- no other payment is pending in the participant's queue.

If one of these criteria is not fulfilled, the transaction is queued. Like TBF, PNS permanently scans queues; when a payment is credited to a participant's account, the system attempts to settle payments queued on its account, in accordance with its balance and on a FIFO basis.

PNS runs two optimisation mechanisms:

- Bilateral optimisation: each time a payment from A to B is queued, the system scans queued payments from A to B and from B to A and attempts to settle them simultaneously

on a FIFO basis and in accordance with both participants' balances and bilateral limits.

- Global optimisation: this process is launched upon a decision by the CRI. First, all payments which would cause bilateral limits to be exceeded are removed virtually from the queues and transitory balances are computed (as the sum of real balances and queued payments which have not been removed virtually). Then, queued payments are removed virtually from the queue of the participant with the transitory balance which is the most negative, until it becomes positive. The same process is applied in an iterative way until all transitory balances are positive. Finally, all payments which have not been removed from the queue are settled, and other payments are queued again in their previous order.

### 3.3.6 CREDIT AND LIQUIDITY RISK

PNS's main feature in terms of risk mitigation is its scheme of irrevocable settlement in central bank money. Furthermore, PNS offers two types of cap, both of which are under the full control of the participants and enable them to control their liquidity and credit risks:

- a multilateral cap: by controlling the amount of liquidity fed into PNS via the real-time link with TBF, a participant can, in practice, set a multilateral limit, i.e. define the maximum amount which it is ready to pay to its counterparties before receiving payments from them.
- a bilateral cap: participants may set bilateral limits vis-à-vis each other. A bilateral limit set by A vis-à-vis B represents the maximum amount that A is ready to pay to B before receiving money from the latter, and thus allows counterparty risk to be controlled. It also acts as a self-regulation mechanism, which encourages participants to bring sufficient liquidity into the system. Indeed, participants which do not provide enough liquidity for the settlement of their operations may be assigned low caps by

their counterparties. Such caps would in turn prevent them from receiving payments due to them from the settlement process.

### 3.3.7 PRICING

The pricing principles are the same for PNS as for TBF (see Section 3.2.8), although the transaction fees differ.

### 3.3.8 STATISTICS

In 2006 PNS processed a monthly average of 551,160 payments. The daily turnover was 25,940 payments, with a total value of €58 billion.

The maximum number of payments processed in one day was 45,220, and the highest daily value was more than €142 billion.

## 3.4 THE FRENCH RETAIL PAYMENT SYSTEM: SIT

SIT was set up in 1992 for the exchange, clearing and settlement of dematerialised payment instruments. It has been designated a system under the provisions of the Settlement Finality Directive, and it benefits from the provisions of Article L330-1 of the MFC relating to the irrevocability of orders and the finality of payments within a system.

In July 2002 SIT became the sole system in France for the exchange of retail payment instruments. It is Europe's largest retail payment system in terms of volume and value, processing, on average, some 48 million transactions a day, with an average daily value of €20 billion in 2006. SIT's development is chiefly due to the gradual dematerialisation of payment instruments and the migration of transactions previously exchanged in other systems:

- The process of dematerialisation began in the 1960s with the creation of direct debits, automated transfers and electronic bills of exchange. Dematerialisation was then extended to commercial bills and all interbank transfers in the 1990s. The process was completed in 2002, when cheque exchanges were dematerialised with the

introduction of the Truncated Cheque Exchange Arrangement (Echange d'Images Chèques; EIC).

- In addition, transactions that were previously exchanged in other systems migrated to SIT. The SIT system has processed card payments since 1995. It has also handled truncated cheques since 2002, when that process came into full effect.

#### 3.4.1 OPERATING RULES

SIT is operated by GSIT, the French interbank automated clearing group, which was set up in 1983 by the main French banks, the Post Office and the Banque de France.

The operation of the system is governed by the Charte Interbancaire Régissant les Conditions d'Echange (CIRCE), an interbank agreement governing exchange conditions. These rules are binding for all participants in SIT.

#### 3.4.2 PARTICIPATION

According to SIT's rules, any resident credit institution or investment firm that issues or receives, through interbank networks, payment instruments deemed as exchanged in SIT is required to participate in SIT, either as a direct or as an indirect participant.

Participation in SIT is organised around three "concentric circles" that reflect participants' access to the system: direct participants, indirect participants and financial institution customers.

- Only direct participants are allowed to send and receive payments in the system. They are required to receive interbank transactions addressed to them. Direct participants have full technical and financial responsibility vis-à-vis the banking community as a whole for all payments exchanged with it, whether on their own behalf or on behalf of the institutions they represent. To become a direct participant in the system, financial institutions must comply with several criteria, inter alia a minimum volume of

transactions and certain financial and technical requirements.

- Indirect participants send and receive payments via direct participants. They are known by the system and are listed in SIT's tables.
- A third circle of participation comprises "customer" credit institutions that exchange their transactions via a direct or an indirect participant. They are unknown by the system and are not listed in SIT's tables.

At the end of 2006 SIT had 1,019 participants: 13 direct participants, 577 indirect participants and 429 customer financial institutions.

#### 3.4.3 TYPES OF TRANSACTION HANDLED

SIT processes all retail cashless payment transactions between banks (e.g. credit transfers, direct debits, card payments and cheques). Truncated cheques have been exchanged through SIT since 2002. This automated procedure is accompanied by a physical (but non-accounting) exchange in the case of a small number of cheques (less than 2% of the overall number of truncated cheques) within the Centre d'Echange Physique de Chèques (Paper-Based Cheque Exchange Centre; CEPC). All transactions carried out in SIT are denominated in euro.

In 2006 SIT processed 12.18 billion transactions, with a total value of €5,030 billion.

#### 3.4.4 OPERATION OF THE SYSTEM AND SETTLEMENT PROCEDURES

SIT processes transactions between participants in three stages: (i) continuous exchange of payments directly between banks' IT centres, called "stations"; (ii) multilateral netting via an accounting centre; and (iii) settlement of multilateral net balances in TBF.

The SIT network is open to exchanges six calendar days out of seven, with five settlement days, and works 24 hours a day. The working

day is divided into different exchange periods (périodes d'échange) for the various types of transaction and one technical period (période de servitude) during which the system is not open to exchanges.

- An exchange period can be defined as a period in which certain types of payment have to be exchanged in order to be settled on a given settlement day. Different cut-off times (heures d'arrêt de la journée d'échange; HAJE) indicate the end of the exchange period for the various types of transaction. In practice, payment orders submitted after the cut-off time are settled on the following settlement day.
- The technical period can be defined as the period lasting from the suspension of the sending of payment orders to the reopening of exchanges. It is used for carrying out technical tasks (end-of-day procedures, data warehouse, etc.).
- From Monday to Thursday, exchanges take place from 12 midnight to 8.50 p.m. CET, and the technical period lasts from 9.10 p.m. to 12 noon CET. On Friday, exchanges take place from 12 midnight on Friday to 10.50 a.m. CET on Saturday, and the technical period lasts from 12.10 p.m. to 2 p.m. CET on Saturday.

During the working day the acknowledgement of payment transactions between a sending participant and a receiving participant in SIT automatically triggers the transmission of an accounting message from the sending party to the SIT accounting centre, which calculates the daily clearing balances to be forwarded to the Banque de France for settlement in TBF.

After the last cut-off time for same-day settlement (1.30 p.m. CET) an accounting process commences (2.30 p.m. CET). This is followed by the transmission of SIT net multilateral balances to TBF, which are settled on the accounts of SIT direct participants held

with the Banque de France on the day of value (at 3.15 p.m. CET).

### 3.4.5 TECHNICAL ENVIRONMENT

SIT consists of a network of IT centres, called "stations", located on each participant's premises. Each direct participant has one or more processing centres, in which a dedicated terminal serves as an access point to SIT. The terminals are connected to all of the SIT joint centres (management centre, accounting centre and backup centre). Each terminal comprises two kinds of logical unit – the sending installation and the receiving installation – which communicate with those of SIT and other participants.

The SIT joint centres, which provide full backup, perform specific functions. The management centre monitors the network, maintains software consistency and ensures security. The accounting centre is responsible for accounting and for computing the balances of direct participants. The backup centre provides the final backup for receiving institutions.

Within the network linking the participants' gateways, the management centre and the accounting centre, data are transferred via a secure IP network.

### 3.4.6 PRICING

The system's pricing structure is based on both fixed and variable fees:

- fixed fees depend on the type of membership (direct or indirect) and the number of gateways and stations;
- variable fees depend on the number of transactions exchanged.

### 3.4.7 MANAGEMENT OF FINANCIAL RISKS

The multilateral netting process underlying the functioning of SIT could expose participants to financial risks by creating interdependencies between all of the participants. Currently SIT's rules foresee an unwinding procedure (i.e. the

recalculation of participants' net balances without the defaulter's transactions) in the event of a settlement failure on the part of a direct participant in TBF, which has never occurred so far. This unwinding procedure would eliminate credit risk with regard to interbank settlement, but it could trigger an unforeseen change in the liquidity position of participants.

An arrangement (including a mutual guarantee fund) to ensure settlement in the event of a default on the part of the participant with the largest debit position will be implemented by 2008 at the latest within the context of SIT's replacement with a new system, CORE (see below).

#### 3.4.8 PROJECTS UNDER DEVELOPMENT

In December 2004 six credit institutions belonging to GSIT created a company known as STET (Systèmes Technologiques d'Echange et de Traitement – Technological Systems for Exchange and Processing), the purpose of which is to set up a new retail payment system. This system, called CORE, is expected to replace SIT in 2007.

The STET project should facilitate the upgrading of the technical infrastructure for the clearing of retail payments. The future system will also implement an arrangement ensuring settlement in the event of a potential failure on the part of the participant with the largest debit position. In addition, the STET project is aimed at contributing to the European banking community's objective of creating a unified market for payments in euro, the SEPA.

## 4 SECURITIES TRADING, CLEARING AND SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 ORGANISATION OF THE FRENCH STOCK EXCHANGE

##### *Governance*

The French stock exchange is managed by a business corporation called Euronext Paris SA, which has the status of a specialised financial institution under French law. In September 2000 the exchanges of Paris, Amsterdam and Brussels merged and became local subsidiaries operated by Euronext NV, a holding company incorporated under Dutch law. The stock exchange of Lisbon and LIFFE (the London International Financial Futures and Options Exchange) joined the group in 2002.<sup>8</sup> Euronext NV is managed by a Supervisory Board (12 members, 3 of whom are French) and a Managing Board (5 members). Euronext Paris SA has replaced ParisBourse SA and is in charge of submitting market regulations to the regulatory market authority, the AMF.

##### *Markets*

Euronext Paris SA manages three regulated markets which must meet special conditions for listing, pricing and settlement, namely the Eurolist, Matif and Monep markets. It also operates two unregulated markets, Alternext and the Marché Libre.

The Eurolist market, which replaced the Premier, Second and Nouveau Marchés in February 2005, is divided into three capitalisation "compartments" for greater simplicity and visibility:

- compartment A: companies with a market capitalisation above €1 billion;

<sup>8</sup> For more information on the Euronext exchanges, see the country chapters for Belgium, the Netherlands, Portugal and the United Kingdom.



- compartment B: companies with a market capitalisation of between €150 million and €1 billion inclusive; and
- compartment C: companies with a market capitalisation of below €150 million.

Matif and Monep are the parts of Euronext's derivatives markets which are managed by Euronext Paris SA and run by Euronext.liffe.

Alternext is an unregulated but organised market designed specifically for small and medium-sized companies. It offers simplified access to financial markets alongside measures to ensure investor protection.

The *Marché Libre* is an unregulated market for companies that do not satisfy the listing requirements of a regulated market or of Alternext.

#### 4.1.2 OPERATING RULES OF THE FRENCH STOCK EXCHANGE

##### *Membership rules*

Only market members can operate on the stock exchanges. They must be investment service providers as defined by the MFC: investment firms, duly authorised credit institutions and asset management companies. Intermediaries which have become market members in order to execute buy and sell orders are considered trading members. Trading members may also become clearing members (see Section 4.2 on clearing) or subcontract clearing and settlement to a clearing member.

##### *Order execution method*

French law requires all orders to be executed on a regulated market (the "concentration rule"). However, in 2007 the implementation of the Markets in Financial Instruments Directive will abolish this rule and will allow competition between regulated markets, multilateral trading facilities (MTFs) and systematic internalisers.

##### *An electronic central order book*

Historically the French stock exchange has been a centralised order-driven market in which the price results from the matching of buy and sell orders. Since 1995 the French stock exchange has been using a new electronic trading system called the *Nouveau Système de Cotation* (NSC). Thanks to this system, trading takes place through member firms acting as brokers and connected via workstations to the central computers of Euronext NV. For each relevant security, the orders entered in the system are ranked first by price limit (for example, a buy order with a higher limit is executed before a similar order with a lower limit) and then in chronological order. The NSC ensures continuous trading of the securities from preopening at 7.15 a.m. CET to closing at 5.40 p.m. CET.

When the transaction has been completed the NSC sends confirmation to the member firms involved and clearing/settlement instructions to the post-trade platforms (see Section 4.2).

Depending on their liquidity, the securities listed on Euronext Paris SA are divided into different trading groups with special trading hours, maximum authorised daily fluctuations and time-limits on halts in trading.

##### *Block trading and market-making.*

In order to foster trades by institutional investors involving large amounts of equities, rules for block trading were introduced in 1994 for the largest stocks. The aim of this mechanism is to increase the liquidity of the market without calling into question the rules of an order-driven market. Large orders were executed in stages, with no guarantee regarding the average price. Thanks to block trading, large orders are immediately executed at a price derived from the price on the central market. The standard block size, which is reviewed on a yearly basis, is mainly based on the market capitalisation in the relevant stock and should be no less than €50,000. The price is included in the weighted-average spread based on the buy and sell orders

on the central market for an equivalent amount.

#### 4.1.3 FUTURE PROSPECTS

As Euronext Paris SA operates in a highly competitive sector, it has had to develop innovative products, create new partnerships and even merge with other stock exchanges. In 2000 the creation of Euronext NV was the first step in the process of consolidation within the European exchange industry. In December 2006 a proposed merger between Euronext NV and NYSE Group Inc. was approved by the shareholders of the two stock exchanges.

A takeover bid started in January 2007 to allow them to participate in this offer. This merger would result in the creation of a new holding company, NYSE Euronext.

## 4.2 CLEARING

### 4.2.1 INSTITUTIONAL ASPECTS

#### 4.2.1.1 General legal aspects

The central counterparty LCH.Clearnet SA has been designated a system under the provisions of the Settlement Finality Directive and benefits from the provisions of Article L330-1 of the MFC relating to the irrevocability of orders and the finality of payment and settlement of financial instruments within a system. As a designated system, LCH.Clearnet SA also benefits from the provisions of Article L431-7 of the MFC that transpose the Collateral Directive and protect guarantees deposited with LCH.Clearnet SA from third-party claims in the event of insolvency on the part of clearing members.

The general legal framework applicable to clearing houses is provided largely by Articles L422-1 to L442-9 of the MFC. In particular, the MFC specifies that a clearing house established in France must be licensed as a credit institution and thus supervised by the CB. A clearing house must have its operating rules approved by the AMF. The MFC also defines the types of entity

which are allowed to participate in a clearing house and which types of function a clearing house must perform. Article L141-4 of the MFC also states that clearing houses are subject to oversight by the Banque de France. Within this framework, the Banque de France has assessed LCH.Clearnet SA against the CPSS-IOSCO recommendations for central counterparties.

#### 4.2.1.2 Recent institutional developments in clearing arrangements

LCH.Clearnet SA is a clearing house providing central counterparty services for French, Belgian, Dutch and Portuguese regulated markets (i.e. Euronext markets) and for OTC transactions.

LCH.Clearnet SA, which has its headquarters in France, is the result of a merger and alliance process which has taken place in France and Europe over the past few years.

The first step in this consolidation process took place in May 1999, when the three French clearing systems, namely Société des Bourses Françaises (for equity trades and options), Matif SA (for interest rate derivatives, futures and options) and the Banque Centrale de Compensation (BCC; for repo and outright trades on government debt securities), merged to form Clearnet SBF SA.

This merger was followed by a new consolidation process, which began after the creation of the Euronext Group and resulted in a merger of the French, Belgian, Dutch (2001) and Portuguese (2003) clearing houses. With this merger, Clearnet became the first entity providing pan-European clearing house and central counterparty services.

Finally, in June 2003 Clearnet and the London Clearing House announced their intention to form a new group, LCH.Clearnet Group Ltd, which was created in December of the same year. In this context, Clearnet and LCH were renamed LCH.Clearnet SA and LCH.Clearnet Ltd respectively and became wholly owned

subsidiaries of LCH.Clearnet Group Ltd<sup>9</sup>. Since the group's creation, the plan to integrate the two clearing houses has been making progress.

#### 4.2.1.3 Supervision and regulation

As a French clearing house providing central counterparty services, and pursuant to Article L141-4 of the MFC, LCH.Clearnet SA is overseen by the Banque de France. Furthermore, pursuant to Article L442-1 of the MFC, the AMF approves and publishes the operating rules for LCH.Clearnet SA. As a credit institution established in France, LCH.Clearnet SA is subject to the authorisations granted by the CECEI and is supervised by the French banking supervisor, the Commission Bancaire, which is also responsible for the prudential supervision of the LCH.Clearnet Group on a consolidated basis.

Since LCH.Clearnet SA provides CCP services to Euronext markets other than the French market, clearing activities related to Euronext markets are also subject to regulation and oversight by the competent authorities in Belgium, the Netherlands and Portugal in accordance with and to the extent permitted and required by their national legal and statutory frameworks. In order to coordinate their oversight and regulation of LCH.Clearnet SA, the French, Belgian, Dutch and Portuguese authorities have entered into a cooperation arrangement whose principles are defined in a memorandum of understanding.

As regards the common central counterparty services provided by LCH.Clearnet SA and Cassa di Compensazione e Garanzia (see Section 4.2.2), a memorandum of understanding has also been established between the French and Italian authorities (i.e. with the Banca d'Italia and Consob) in order to organise their cooperation in respect of the oversight and regulation of this specific service.

Finally, following the creation of the LCH.Clearnet Group, the French, Belgian, Dutch and Portuguese authorities have entered into a memorandum of understanding with the Bank of England and the Financial Services

Authority. This agreement aims to set out principles for cooperation between the different authorities dealing with LCH.Clearnet Group Ltd, in particular through a system of information exchange, efforts to harmonise oversight methods and the evaluation of the methods used to manage risks and operating practices.

#### 4.2.1.4 Access criteria

The participation criteria for clearing houses are defined in Article L442-2 of the MFC. Under French law, clearing house participants must be licensed credit institutions, investment firms or legal entities whose principal or sole objective is the clearing of financial instruments. Institutions established outside France must obtain the prior approval of the AMF.

In addition to the above-mentioned legal requirements, LCH.Clearnet SA's rules stipulate that participation in its clearing system is subject to additional conditions, such as minimum capital requirements and the fulfilment of financial and operational criteria.

### 4.2.2 OPERATIONAL ASPECTS

#### 4.2.2.1 Scope of clearing services

LCH.Clearnet SA acts as a central counterparty which offers a guarantee on a broad range of products traded on regulated markets or on OTC markets and trading platforms, such as: equities; convertible bonds; warrants, trackers and subscription rights; equity and index options and futures; commodities options and futures; bonds and repos.

Over the last few years the range of markets for which LCH.Clearnet SA has been providing central counterparty services has broadened significantly. In 2006 LCH.Clearnet SA was the single central counterparty used by the Euronext Paris, Brussels, Amsterdam and Lisbon cash and derivatives markets<sup>10</sup> and also provided

<sup>9</sup> LCH.Clearnet Group Ltd is owned by users, the Euronext Group and the Euroclear Group.

<sup>10</sup> The Euronext.liffe market is, however, using the central counterparty services of LCH.Clearnet Ltd.

services to the London Stock Exchange for transactions on Dutch securities. In addition, LCH.Clearnet SA serviced several electronic trading platforms, dedicated mainly to OTC trades on French government bonds and trades on Italian government bonds. With regard to the latter, central counterparty services are provided through a cooperative arrangement with Cassa di Compensazione e Garanzia, the Italian clearing house.

#### 4.2.2.2 Guarantees provided and risk management

LCH.Clearnet SA acts as central counterparty for instruments admitted to its operations. Pursuant to the clearing house's rules, once a trade has been transmitted to LCH.Clearnet SA and registered in its system LCH.Clearnet SA becomes the counterparty of both the seller and the purchaser.

The guarantee covers the delivery of securities (in the event of default on the part of the seller) and the payment of the cash leg of transactions (in the event of default on the part of the buyer). This guarantee is provided on a net basis, i.e. after gross transactions have been registered in LCH.Clearnet SA's systems and reduced to net amounts, and covers only the members of the clearing house.

In order to guarantee trades registered in its systems, LCH.Clearnet SA calls margins that aim at covering the individual position of each clearing participant on a day-to-day basis. There are two types of margin requirement:

- initial margin deposits aim to cover the upcoming risk on the open positions registered with the clearing house; and
- the variation margin or margin calls cover the price difference between the original price of the registered position and the marked-to-market price.

These margins are complemented by two mutual clearing funds (one for Euronext markets and one for OTC and MTS Italy bonds and repo

activities) which aim at covering the default of any clearing participant in extreme but plausible market conditions.

In addition, as a credit institution, LCH.Clearnet SA maintains a level of own funds consistent with the risk profile of its clearing activities.

#### 4.2.2.3 Clearing system

Cash and derivatives transactions executed on the Euronext Paris, Brussels, Amsterdam and Lisbon markets, as well as transactions on Dutch securities on the London Stock Exchange, are processed through a single clearing system operated by LCH.Clearnet SA. This system, called Clearing 21, which was developed in conjunction with the Chicago Mercantile Exchange and Nymex, operates pursuant to the Span margining model.

This system makes it possible to take into account the correlation between derivatives and their underlying financial instruments when calculating risks with regard to participants' positions. Consequently, it allows cross-margining between futures, options and the underlying securities.

As regards OTC trades, the clearing system used by LCH.Clearnet SA is the Kondor+ system, which clears over-the-counter transactions executed on electronic platforms for which LCH.Clearnet SA provides clearing services.

#### 4.2.2.4 Settlement procedures

In order to settle trades executed on Euronext Paris, Amsterdam, Brussels and Lisbon markets, LCH.Clearnet SA uses the securities settlement systems operated by Euroclear France (the revocable channel of the RGV2 system), Euroclear Nederland, Euroclear Belgium, Euroclear Bank and Interbolsa (Portugal).

In addition, in order to settle trades on French and Italian government bonds, LCH.Clearnet SA participates in the irrevocable channel of the RGV2 system of Euroclear

France and in the Express II system operated by Monte Titoli.

For cash payments in euro (including the collection of deposits, margins and cash contributions to clearing funds), LCH.Clearnet SA uses the RTGS payment systems operated by the Banque de France (TBF), the Nationale Bank van België/Banque Nationale de Belgique (ELLIPS), De Nederlandsche Bank (TOP), the Banco de Portugal (SPGT) and the Banca d'Italia (BI-REL). While cash payments in currencies other than the euro are possible (using commercial payment agents) under LCH.Clearnet SA's rules, this facility is not, in fact, used by members.

## 4.3 SETTLEMENT

### 4.3.1 INSTITUTIONAL ASPECTS

#### 4.3.1.1 General legal aspects

The RGV2 system has been designated a securities settlement system under the provisions of the Settlement Finality Directive. Consequently, it benefits from the provisions of Article L330-1 of the MFC relating to the irrevocability of orders and the finality of settlement of financial instruments within a system. RGV2 also benefits from the provisions of Article L431-7 of the MFC that transpose the Collateral Directive and protect guarantees provided in the framework of a designated system from third-party claims in the event of insolvency on the part of the guarantee provider.

All securities transactions processed through the RGV2 system are settled by book entry. This is possible thanks to the full dematerialisation of securities, which, in France, was achieved with the implementation of Article 94 of the Act of 30 December 1981 (now enshrined in Article L211-4 et seq. of the MFC) and the Decree of 2 May 1983.

#### 4.3.1.2 The role of the Banque de France

Pursuant to Article L141-4 of the MFC, the Banque de France is responsible for the oversight of securities settlement systems. Within this framework, the Banque de France has assessed the RGV2 system operated by Euroclear France against the CPSS-IOSCO recommendations for securities settlement systems.

Furthermore, the Banque de France is also the settlement agent for the RGV2 securities settlement system. Accordingly, all settlements processed through this system are settled in central bank money in euro on the books of the Banque de France.

Lastly, the Banque de France uses the irrevocable channel of the RGV2 system for the transfer of collateral in the context of implementing its credit operations.

#### 4.3.1.3 The role of other public and private sector bodies

According to Article L622-7 of the MFC, the AMF is in charge of authorising central securities depositories and approving the depository and securities settlement system's operating rules.

### 4.3.2 OVERVIEW OF RECENT DEVELOPMENTS IN THE ORGANISATION OF SECURITIES SETTLEMENT SYSTEMS

#### 4.3.2.1 Recent institutional developments

Euroclear France, the French central securities depository, was created by way of the Decree of 4 August 1949 as SICOVAM.

SICOVAM assumed the name "Euroclear France" in January 2001, when it joined Euroclear Bank – the international central securities depository – in the Euroclear Group.

Following the corporate restructuring of the Euroclear Group which took place in January 2005, Euroclear France, like the group's other (international) CSDs, is wholly owned by its

parent company, Euroclear SA, which is incorporated in Belgium.

#### 4.3.2.2 Operational features of the securities settlement system

The RGV2 securities settlement system is operated by Euroclear France. As France's central securities depository and operator of RGV2, Euroclear France ensures the book-entry transfer of securities between financial intermediaries. The RGV2 system comprises two channels hosted by the same technical platform:

- the irrevocable RGV2 channel (formerly called RGV), which ensures immediate finality; and
- the revocable channel (formerly called Relit+), which provides deferred net finality.

The irrevocable channel, which is based on DvP Model 1, ensures immediate real-time finality in central bank money by processing both the cash and the securities legs of settlements on a gross and real-time basis through a single platform. To that end, cash settlements in central bank money are technically and automatically processed by Euroclear France on its settlement platform pursuant to Banque de France rules. The irrevocable channel is used to settle OTC trades and collateral transfers in the context of credit operations with the Banque de France (monetary policy and intraday credit in the RTGS system, TBF).

The revocable channel, which is operated on the basis of DvP Model 2, provides deferred finality in central bank money by processing the securities leg on a gross basis and the cash leg on a net basis. This channel provides finality three times a day, once in the morning and twice in the afternoon, when the cash leg is settled on the books of the Banque de France in TBF. The revocable channel settles trades executed on Euronext Paris and cleared by

LCH.Clearnet SA, as well as OTC operations which do not require real-time finality.

Given the settlement risks involved in the event of a participant's default in the RGV2 revocable channel, the Banque de France asked Euroclear France in 2002 to take appropriate measures to ensure the timely settlement of operations even in the event of default on the part of the participant with the largest payment obligation, pursuant to international oversight requirements<sup>11</sup>. To that end, Euroclear France and the French financial community have set up a protection arrangement relying on a mutual guarantee fund (exceeding €400 million) which is complemented by individual guarantees which would be used to ensure timely settlement in the event of a participant's payment default. This arrangement has been in place since February 2005. The RGV2 revocable channel protection mechanism will be maintained until the end of 2007, at which time it is expected both that the revocable channel will be discontinued (and all securities operations thereafter settled in the RGV2 irrevocable channel) and that the ESES project will be launched in France.

#### 4.3.2.3 Participation in the RGV2 system

Credit institutions and investment firms licensed in France or established in the EEA and allowed to use the European passport may be admitted to the system, as may CSDs. Other French or foreign institutions can also have access to the RGV2 system, provided that the AMF does not veto their participation. However, only institutions which fulfil the statutory access criteria for participation in TBF (see Section 3.3) are allowed to be settlement participants and to open a cash position with the Banque de France for the settlement of the transactions processed through the irrevocable channel. Other institutions use the settlement services provided by a settlement bank having an account with the Banque de France.

<sup>11</sup> CPSS-IOSCO, Recommendations for SSSs, November 2001.



#### 4.3.2.4 Settlement procedures

##### *RGV2 revocable channel*

In the revocable channel, the settlement of the securities leg takes place on a gross basis and settlement of the cash leg takes place on a multilateral net basis. Cash balances are settled three times a day in TBF. Once net balances are successfully settled in TBF, securities transfers become final.

If one or more participants fail to meet their payment obligations in TBF, the individual guarantees predeposited by the defaulters and the mutual guarantee fund dedicated to the protection of the RGV2 revocable channel are used in order to cover the failures and ensure the timely settlement of operations. Participants using the guarantee fund are exposed to financial penalties and are required to immediately refund the mutual fund up to its initial amount. In fact, available resources generally exceed the payable amount of the participant with the largest cash settlement obligation in the RGV2 revocable channel.

##### *RGV2 irrevocable channel*

As stated above, the irrevocable channel is a DvP Model 1 SSS which provides immediate finality in central bank money by operating both the securities and cash legs on a single platform in accordance with common procedures.

Cash settlements in the RGV2 irrevocable channel take place on cash accounts held by participants with the Banque de France. These cash accounts, which are technically managed in the RGV2 irrevocable channel, are fed by:

- the proceeds of securities sales in the irrevocable channel; and
- real-time cash transfers from TBF accounts through a technical bridge existing between the RGV2 irrevocable channel and TBF, allowing smooth and immediate transfers of central bank money in both directions.

As regards this real-time bridge, participants may transfer central bank money between the RGV2 irrevocable channel and TBF at any time of the day. These transfers are triggered either automatically at certain times of the day or upon instruction by participants. A participant can transfer cash at will from its TBF account to its dedicated account operated in the RGV2 irrevocable channel by using TBF instructions, or from its cash account in the RGV2 irrevocable channel to its TBF account.

In any event, at the end of the day cash positions must be reset to zero through a mandatory liquidity sweep whereby cash from these cash accounts is transferred to the participants' (or their agents') RTGS accounts in TBF.

In addition to the liquidity available on their cash positions, participants' purchasing power also includes auto-collateralisation procedures (Pensions Livrées Conservatoires; PLCs). Auto-collateralisation procedures make it possible to provide participants with credit in central bank money (against Eurosystem eligible collateral through intraday credit repo operations) in order to settle their pending transactions.<sup>12</sup> PLCs are automatically triggered by the RGV2 irrevocable channel when an eligible counterparty does not have enough cash to settle its securities purchases in the system. In such a case, an intraday repo operation between the participant and the Banque de France is automatically triggered, by using securities in stock (earmarked for that purpose before the start of the operating day by the participant) or by using securities under processing.

Thanks to the mechanism for automatically setting up intraday repos, the level of efficiency of the RGV2 system is particularly high, and the average percentage of transactions remaining unsettled at the end of the day is remarkably low (around 0.2%).

<sup>12</sup> Provided that those participants are eligible counterparties of the Eurosystem and have entered into an agreement with the Banque de France.

In any event, all intraday repurchase agreements must be reimbursed before the end of the business day. Within the operating day reimbursement is automatically triggered as soon as cash becomes available on the participant's dedicated account in the RGV2 irrevocable channel (notably following the settlement of securities sales). At the end of the day the system automatically settles the reimbursement of intraday repos. If participants have sufficient cash to reimburse the repos, their TBF accounts are debited. If, exceptionally, a participant does not have the funds to reimburse the repo in TBF, a collateralised overnight repo for the outstanding cash balance is set up (involving recourse to the Eurosystem marginal lending facility).

#### 4.3.2.5 Development of Euroclear France's securities settlement system

In order to provide efficient cross-border settlement in central bank money, the Euroclear Group has elaborated an integration process, which began in 2006 with the launch of a single settlement engine (SSE). The SSE is the technical infrastructure that will support the settlement services of all of the group's (international) central securities depositories. It was launched in France in May 2006 and is expected to be progressively extended to Euroclear Bank and CRESTCo in 2006 and, thereafter, to Euroclear Nederland and Euroclear Belgium (in 2008).

The second step of this programme is expected to take place in 2007-08 with the launch of the ESES project, which will cover Euroclear France, Euroclear Belgium and Euroclear Nederland. The objective of the ESES project is to allow real-time cross-border settlement in central bank money of securities issued in those CSDs, thereby facilitating the implementation of the Euronext Single Order Book. In order to allow the participants in the three CSDs to settle cross-border transactions in central bank money with the central bank of their choice (i.e. with either the Banque de France, the Nationale Bank van België/Banque Nationale de Belgique or De Nederlandsche Bank), the

ESES project will be based on the principles of Euroclear France's current RGV2 irrevocable channel. In particular, ESES will process both the cash and the securities legs of settlement on the same platform and in accordance with the same procedure.

Finally, the last step of Euroclear's programme is expected to take place in 2009-10 with the launch of the Single Platform, which will extend the operating principles of the ESES platform to CRESTCo and Euroclear Bank, complete the implementation of the Common Communication Interface between the Euroclear platform and its participants, and, consequently, finalise the integration of the Euroclear Group's (I)CSDs.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE BANQUE DE FRANCE

##### 4.4.1 USE OF THE RGV2 IRREVOCABLE CHANNEL FOR BANQUE DE FRANCE CREDIT OPERATIONS

In addition to the automated provision of intraday credit in the irrevocable channel through auto-collateralisation, the Banque de France uses the RGV2 irrevocable channel to receive collateral in the context of intraday credit operations and monetary policy operations in TBF.

Pensions Livrées Intrajournalières (PLIs) are intraday credit operations implemented with TBF participants against eligible collateral through DvP repurchase agreements. They are triggered at the request of eligible counterparties and credited on their RTGS accounts in TBF. Like PLCs, PLIs must be squared before the end of the day; otherwise, they are turned into overnight repos.

Finally, the RGV2 irrevocable channel is also used for the transfer of Eurosystem eligible collateral to the Banque de France through DvP repurchase agreements in the context of the implementation of monetary policy operations.

#### 4.4.2 ROLE OF THE SSS IN COLLATERAL MANAGEMENT

The SSS has a specific role in the management of collateral granted to the Banque de France in the context of its credit operations.

In compliance with the Eurosystem's principles, the RGV2 irrevocable channel is in charge of:

- performing the transfer of collateral from the counterparties' accounts to the Banque de France's account;
- checking automatically that the securities earmarked by counterparties are on the list of eligible collateral published by the Eurosystem on a daily basis; and
- performing technical tasks on behalf of the Banque de France with regard to pricing the collateral; the performance of these technical tasks consists in applying the price communicated by the Banque de France (either directly or indirectly through the designation of a source of prices) and the haircuts defined by the Eurosystem.

As regards the performance of these technical tasks, the Banque de France performs a daily check in order to ensure that the collateral management tasks performed by the RGV2 irrevocable channel on its behalf comply with the rules of the Eurosystem and with the procedures defined by the Banque de France.

#### 4.4.3 ASSESSMENT OF THE RGV2 IRREVOCABLE CHANNEL AGAINST ESCB USER STANDARDS

In 1998 the first assessment of the SSS (at that time called RGV) used for the Eurosystem's credit operations was carried out. Since then, RGV/the RGV2 irrevocable channel has been regularly assessed as being fully compliant with the ESCB user standards and hence as being an eligible securities settlement system for the implementation of Eurosystem credit operations.

Several links between Euroclear France and other (I)CSDs in the euro area have also been

assessed by the Eurosystem as being eligible for the transfer of collateral for the Eurosystem's credit operations. In 2005 ten links between Euroclear France and other CSDs were deemed eligible, namely, links with OeKB (Austria), the National Bank of Belgium SSS (Belgium), Euroclear Bank (Belgium), APK (Finland), Clearstream Banking Frankfurt (Germany), Clearstream Banking Luxembourg, Monte Titoli (Italy), Euroclear Nederland, CADE (Spain) and SCLV (Spain).



# ITALY

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## LIST OF ABBREVIATIONS

ABI	Italian Bankers' Association – <i>Associazione Bancaria Italiana</i>
ATS	Alternative trading system
BI-COMP	Banca d'Italia clearing system – <i>Banca d'Italia Compensazione</i>
BI-REL	Banca d'Italia real-time gross settlement system – <i>Banca d'Italia Regolamento Lordo</i>
BrokerTec	Global fixed income wholesale trading platform managed by ICAP plc
CC&G	Clearing house – <i>Cassa di Compensazione e Garanzia</i>
CIPA	Interbank Convention on Automation – <i>Convenzione Interbancaria per i Problemi dell'Automazione</i>
CLFI	Consolidated Law on financial intermediation
CNEL	National Council of Economy and Labour – <i>Consiglio Nazionale dell'Economia e del Lavoro</i>
CNIPA	National Centre for Information Technology in Public Administration – <i>Centro Nazionale per l'Informatica nella Pubblica Amministrazione</i>
Consob	Companies and Stock Exchange Commission – <i>Commissione Nazionale per le Società e la Borsa</i>
e-MID	Screen-based interbank deposit market – <i>Mercato Interbancario dei Depositi</i>
EPOP	Electronic payment order procedure – <i>Mandato informatico</i>
EuroMTS	The wholesale market for European benchmark government bonds managed by EuroMTS Ltd
Express II	Clearing and settlement system for transactions involving non-derivative financial instruments – <i>Sistema di liquidazione lorda e netta delle operazioni su strumenti finanziari non derivati</i>
ICCREA	<i>Istituto Centrale del Credito Cooperativo</i>
IDEM	Market for equity derivatives
LDT	Securities net settlement procedure – <i>Liquidazione dei Titoli</i>
MTS	Screen-based market for government securities – <i>Mercato Telematico dei Titoli di Stato</i>
PCT	Electronic market for repurchase agreements – <i>Mercato Elettronico dei Pronti Contro Termine</i>
RIBA	Electronic bank receipts – <i>Ricevuta Bancaria</i>
RNI	National interbank network – <i>Rete Nazionale Interbancaria</i>
RRG	Daily matching correction system – <i>Riscontro e Rettifica Giornaliera</i>

SIA Interbank Company for Automation – *Società Interbancaria per l'Automazione*  
SSB *Società per i Servizi Bancari*



## INTRODUCTION

The Italian payment system has changed significantly in recent years in response to European integration, developments in financial markets, technological innovation and initiatives launched by public authorities.

Substantial changes to the institutional framework have come as a result of legislative and regulatory measures aimed at: (i) strengthening the reliability of the Italian payment system; (ii) encouraging the use of new payment instruments; and (iii) increasing the efficiency of financial markets.

In line with such objectives, the 1993 Banking Law entrusted the Banca d'Italia with explicit responsibilities aimed at promoting the reliability of the payment system and fostering its efficiency. The Law also envisaged the possibility of the Banca d'Italia issuing specific provisions in the field of payment systems. In February 2004 the Banca d'Italia issued provisions on the oversight of payment systems, which set out the scope of the oversight activities to be carried out by the Banca d'Italia in respect of payment systems, relevant infrastructures and payment instruments.

As regards interbank payment systems, in the second half of the 1990s the Banca d'Italia carried out a far-reaching reform aimed at increasing the stability and efficiency of the payment system as a whole. This reform envisaged the establishment of a real-time gross settlement system (BI-REL) alongside the net retail settlement system BI-COMP. The direct management of both systems allows the Banca d'Italia to closely monitor the risks inherent in their functioning and to ensure open and non-discriminatory access to these systems. Despite the fact that BI-REL has proved to be successful in achieving its objectives, in the early 2000s the Banca d'Italia launched a project to carry out a functional upgrade of the system, prompted by technological changes and the new needs of markets and participants. The project sought to improve the efficiency, reliability and security

of BI-REL, with the ultimate goal of strengthening the competitiveness of the Italian market-place and increasing its openness to foreign intermediaries. The success of the new version of the system – which was launched in June 2003 – is confirmed by the fact that BI-REL (together with the German and French systems) has been chosen as the basis for developing the new unified RTGS platform for the euro area (TARGET 2).

Both the Banca d'Italia and the Italian Bankers' Association (ABI) have been involved in the activities under way to implement the Single Euro Payments Area (SEPA) project. In particular, a national migration plan is being organised to establish pan-European payment instruments (credit transfers, direct debits and card payments) by 2008 and to call for the direct involvement of all stakeholders in the project; in this regard, major Italian banks have decided to move their domestic traffic to the pan-European automated clearing house (PE-ACH) STEP2. The Italian approach to the SEPA, which is supported by the oversight authority, also focuses on the promotion of forward-looking solutions with a view to achieving the integration – through thorough, end-to-end, straight-through processing – of commercial (e.g. e-invoicing) and financial flows using the possibilities offered by consolidated national services (e.g. RIBA – electronic bank receipts – and the Interbank Corporate Banking (CBI) service).

In order to take into account the need to implement a SEPA-compliant infrastructure for the clearing and settlement of retail payment systems, oversight rules have recently been issued in order to regulate the BI-COMP system and define the institutional framework needed for the evolution of BI-COMP in a SEPA-compliant infrastructure. Moreover, the direct involvement of the Banca d'Italia in the system has been limited to the clearing and settlement of transactions, thereby leaving to the market the exchange of payment instructions and all activities preparatory to determining multilateral clearing balances.

The process of European financial integration has fostered ongoing consolidation in Italy in both the banking sector and infrastructure. In 2007 two of the main Italian infrastructure service providers (SIA and SSB) merged and two others (SECETI and ICCREA) have signed a cooperation agreement

Within its institutional activities, especially those derived from Italy's membership of the European Union, the Banca d'Italia has devoted special attention to enhancing the reliability and efficiency of payment services. In particular, the oversight authority has promoted the enhancement of traditional instruments, lobbying the ABI with a view to shortening the execution time for credit transfers and cheques. Efforts have been made both to increase the use of electronic procedures for the exchange of information on payment instruments and to streamline the exchange of paper-based instruments. Provisions governing digital signatures have laid the foundations for the wider use of open networks in payment activities. In order to increase the security of cheques, an interbank database – storing data on persons who have drawn bad cheques or written cheques without authorisation – has been set up by the Banca d'Italia. Specific initiatives launched by the ABI with a view to promoting the wider use of debit cards have helped to increase the use of such cards.

As regards securities, the Consolidated Law on financial intermediation (Legislative Decree No 58 of 24 February 1998; CLFI) established the principle that the management and organisation of regulated markets are entrepreneurial activities and entrusted the Banca d'Italia with surveillance functions for regulated markets relevant to the conduct of monetary policy. The CLFI provides that settlement and custody services for securities may be carried out by private companies. Against this background, the Banca d'Italia no longer acts as a central depository (CSD) for government securities or as manager and owner of the securities settlement system (SSS).

Substantial improvements in the efficiency and stability of securities settlement have been achieved with the launch of a new securities settlement procedure, Express II.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The main providers of payment services are the banking system, the Italian Post Office (Poste Italiane SpA) and the Banca d'Italia.

The 1993 Banking Law, which came into force on 1 January 1994, provides that banking activity consists of collecting deposits from the public and granting credit. Credit institutions are authorised to carry out other activities subject to mutual recognition throughout the European Union (under Directive 2000/12/EC of 20 March 2000), notably the issue and management of payment instruments.<sup>1</sup> As a result of merger activities, the number of banks has fallen significantly (from 876 in 1999 to 784 in 2005). At the end of 2005 there were 31,501 branches. There were 66 foreign banks, with 108 branches.

Payment services provided by non-banking intermediaries<sup>2</sup> (e.g. money transfer operators) account for only a small share of the total and are limited to instruments such as payment cards and money transfers.

The regulatory framework of the Italian payment system is based on the provisions of the Italian Civil Code, the 1993 Banking Law (see Legislative Decree No 385 of 1 September 1993) and other specific laws, including the codified law on note-issuing banks (see Codified Law No 204/1910 and the Banca d'Italia's statutes governing bank transactions negotiated or executed by the Banca d'Italia). The circulation of individual paper-based payment instruments (e.g. cheques) and the discharging of financial obligations (e.g. novation and bilateral netting) are governed by the provisions of the Civil Code and other specific laws (see Royal Decree No 1345 of 21 September 1933 and Legislative Decree No 1736 of 21 December 1933).

The Banca d'Italia's interest in the proper functioning of the payment system and, in

particular, of interbank networks and infrastructures also stems from its role in the implementation of monetary policy and as supervisor of the banking system. The Royal Decree of 6 May 1926 conferred upon the Banca d'Italia exclusively responsibility for managing the clearing system for interbank payments.

With a view to fostering competition in the provision of retail payment services and achieving the objectives of the SEPA, an oversight provision was issued in November 2005 in order to regulate the framework for the management by the Banca d'Italia of BI-COMP, the clearing and settlement system for retail payments. The system is divided into two sub-systems: (i) the "Retail" sub-system for the processing of electronic transactions, and (ii) the "Local Clearing" sub-system for the processing of cheques and paper-based transactions. For the "Retail" sub-system, those provisions state that the exchange of payment instructions and the carrying out of activities preparatory to determining the multilateral clearing balances are to be left to the market in conditions of free competition among market participants. At present the Banca d'Italia is thus involved only in the calculation of the multilateral clearing balances and their transmission for settlement. The BI-COMP system has been brought into line with SEPA requirements for infrastructure. In line with current developments in Europe, the new regulations extend the range of possible participants in the BI-COMP system, citing the principle of non-discrimination within the European Economic Area. Requirements related to the SEPA project have also led to a provision obliging infrastructures to foster the use of

1 Under Directive 2000/28/EC of 18 September 2000 electronic money institutions, which issue means of payment in the form of electronic money, are credit institutions.

2 The Italian Banking Law provides that financial entities other than banks are to be listed in the general register kept by the Italian Foreign Exchange Office (Ufficio Italiano dei Cambi). Only those listed intermediaries are permitted to provide financial and payment services. Relevant financial entities must also be registered by the Banca d'Italia and are subject to prudential rules which are similar to banks' regulations, but less restrictive.

technical and procedural standards that allow the fully automated handling of transactions and are consistent with the realisation of the project. The operator of BI-COMP may also establish relations with entities providing clearing and settlement services outside Italy and thereby broaden the range of services provided.

The 1993 Banking Law conferred on the Banca d'Italia explicit responsibilities and powers aimed at ensuring the efficiency and soundness of the payment system (see Article 146 on payment systems oversight). This function is performed in accordance with the guidelines issued by the ECB (see the euro area chapter). In accordance with international and European guidelines, in February 2004 the Banca d'Italia issued provisions implementing Article 146 of the 1993 Banking Law, in which the purpose of oversight, the areas concerned and the scope of oversight activities are set out in a systematic manner. In this regard, the Banca d'Italia is responsible for overseeing payment systems, relevant infrastructures and payment instruments. The role of the Banca d'Italia also includes involvement in the definition of technical rules concerning electronic funds transfers as regards the public administration (in accordance with Legislative Decree No 82/2005).

As regards the transparency of banking services, the 1993 Banking Law gave the Banca d'Italia the power to control the way in which commercial banks deliver the information they are required to provide to customers.

Following the implementation of the EC Electronic Money Institutions Directive, the Banca d'Italia is empowered to impose penalties in the event of any infringement of the oversight requirements concerning e-money (Article 114 quater of the 1993 Banking Law).

Cross-border credit transfers are regulated by Directive 97/5/EC (which was transposed into Italian law by means of Legislative Decree No 253 of July 2000) and Regulation (EC)

No 2560/2001; Legislative Decree No 180/2004 provides for penalties in the event of infringements of the Regulation.

Furthermore, it is also worth mentioning, in respect of the Italian market, both the EC directive on payment services in the internal market, which amends Directives 97/7/EC, 2000/12/EC and 2002/65/EC, and the EC regulation on information on the payer accompanying transfers of funds. These provisions will be crucial in order to overcome residual barriers and regulatory uncertainties with regard to the establishment of the SEPA.

Competition is safeguarded by antitrust law, and responsibility for avoiding restrictive practices in the banking system is given to the Antitrust Authority (Autorità garante della concorrenza e del mercato; see Law No 262 of 28 December 2005).

In 1994, following the implementation of the European Investment Services Directive, the Italian parliament instructed the government to issue the CLFI. The government took the opportunity to amend the regulations governing issuers of securities on regulated markets with a view to better protecting investors and the interests of minority stakeholders.

The CLFI, issued in February 1998, is therefore divided into three main parts: rules on issuers of securities traded on regulated markets; rules on financial intermediaries; and rules on financial markets, CSDs, SSSs and guarantee systems.

The CLFI establishes the private nature of the management of financial markets, SSSs and CSDs. Privatisation has been achieved by separating the management functions, which are assigned to private companies, from the supervisory functions, which are assigned to public authorities.

In this context, the financial markets have been privatised, and financial services, from trading to settlement, are no longer strictly considered

public services. In order to enhance competition in the financial services sector, financial markets, settlement and guarantee services are managed by private companies.

The legal framework for CSDs has been completed by means of a number of rules on financial instrument dematerialisation established at the start of Economic and Monetary Union. Dematerialisation is compulsory for all government bonds, for all private listed securities and for financial instruments, as set out by the Companies and Stock Exchange Commission (Consob) and the Banca d'Italia on the basis of their degree of circulation.

#### *The legal framework for regulated financial markets*

In Italy the competent authority for regulated markets is Consob. However, the CLFI provides for a derogation for those markets that are considered relevant for monetary policy.

In particular, the Ministry of the Economy and Finance, having consulted the Banca d'Italia and Consob, must regulate and authorise wholesale markets for government securities. Currently, MTS SpA is the only Italian market management company authorised to manage wholesale markets for government bonds (see Section 4.1.1).<sup>3</sup>

#### *The process of privatising the clearing and settlement systems*

The Italian clearing and settlement system, which consists of an SSS, a CSD and a CCP, has long been characterised by fragmentation. In particular, the CSD's activities (notably custodial activities) have always been separated from the management of the SSS. The central depository system for government bonds was managed by the Banca d'Italia, and since 1974 the private securities depository system has been operated by Monte Titoli, a private company controlled by the Banca d'Italia. The SSS was operated by the Banca d'Italia until January 2004. The implementation of the CLFI provided an opportunity to reorganise and privatise the clearing and securities settlement

systems. The Banca d'Italia's share in Monte Titoli has been sold. The latter is now engaged in the management of the new clearing and settlement system for transactions involving non-derivative financial instruments, Express II (see Section 4.3.1), which replaced the securities net settlement procedure (Liquidazione dei Titoli – LDT) previously managed by the Banca d'Italia. The process of privatisation has also involved the ownership of the main network infrastructure, the Interbank Company for Automation (SIA; see Section 1.3.4): the Banca d'Italia has sold its share, and SIA has merged with CED-Borsa.

Three different legislative provisions define the legal principles for the entire settlement system.

SSSs are governed by a general regulation issued by the Banca d'Italia, with the agreement of Consob (see the legal provision of 8 September 2000 on the clearing and settlement of transactions involving non-derivative financial instruments under Article 69 of the CLFI). This regulation lays down the general framework and establishes the conditions in which SSS activities can be managed by a private company.

The CSD's activities are governed by a regulation issued by Consob and the Banca d'Italia (see Consob Regulation No 11768/98) which sets out the CSD's members, instruments and instrumental activities.

The guarantee systems for financial instruments are governed by a general regulation issued by the Banca d'Italia, with the agreement of Consob (see the legal provision of 22 October 2002 on the guarantee systems for transactions involving financial instruments under Articles 68, 69.2 and 70 of the CLFI). That regulation sets out the requirements for the management company and establishes general criteria for the functioning of guarantee systems in the form of both central counterparty and guarantee funds.

<sup>3</sup> Italian government bonds are also traded on EuroMTS, the wholesale market for European benchmark government bonds managed by EuroMTS Ltd.

## 1.2 THE ROLE OF THE BANCA D'ITALIA

### 1.2.1 GENERAL RESPONSIBILITIES

The Banca d'Italia has the power to exert a controlling and guiding influence over financial activities in the field of payment services. The public's interest in the payment system stems from the need both to ensure its stability and to minimise coordination failures which could lead to inefficiencies. Consequently, the Banca d'Italia is tasked with ensuring the smooth functioning of the payment system in terms of its efficiency and financial reliability.

In Italy the central bank has traditionally played an important role in the direct provision of payment and settlement services with a view to enhancing the efficiency of the payment system and increasing its stability. The operational role of the Banca d'Italia in the payment and securities settlement systems currently entails the issuing of banknotes, the management of both BI-REL and BI-COMP, and the management of government payments as a fiscal agent.

The Banca d'Italia also has a supervisory role in those markets which are relevant for monetary policy, i.e. the wholesale screen-based market for government securities (MTS) and the screen-based interbank deposit market (e-MID).

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

As mentioned above, the oversight function is officially assigned to the Banca d'Italia by virtue of Article 146 of the 1993 Banking Law (which concerns the oversight of payment systems), which states that the "Banca d'Italia shall promote the regular operation of payment systems. For this purpose, it may issue regulations to ensure the efficiency and reliability of clearing and payment systems".

In order to implement Article 146 of the 1993 Banking Law, the Banca d'Italia issued – on 24 February 2004, after ascertaining the opinion of the ECB and consulting the main players in the domestic payment system – its framework guidelines for the exercise of payment system

oversight. These specify the aims of that oversight, setting objectives for reliability (essentially, the prevention of operational and settlement risk) and efficiency (which is to be gauged on the basis of the speed and cost of the entire money transfer cycle). They underline the importance of interaction between all parties involved in the production and provision of payment services (i.e. an "end-to-end" approach). That oversight is to cover payment systems, infrastructure services and payment instruments (both traditional and innovative). In particular, some payment infrastructures are considered "significant infrastructure services", given the volume and characteristics of the data handled or the role of those infrastructures (e.g. as regards the routing of data), and are subject to more stringent rules than those laid down for other infrastructure services. Responsibilities and obligations towards the oversight authority depend on participants' activities, not their status (i.e. whether they are financial or non-financial institutions). The new rules impose information-related requirements on entities providing payment services, with some to be fulfilled on the entities' own initiative and some at the authority's request. The Banca d'Italia is empowered to make public any information that needs to be generally known.

The oversight activities of the Banca d'Italia can be performed autonomously or in cooperation with other authorities or private bodies playing an institutional role within the payment system (at the national level, the Antitrust Authority, the National Centre for Information Technology in Public Administration (CNIPA), the National Council of Economy and Labour (CNEL), etc.).

The Banca d'Italia communicates its policy stance as regards the oversight function by means of the full disclosure of its plans and methods of intervention to market players (i.e. financial intermediaries, service providers and market infrastructures). Furthermore, it keeps the general public informed of its activities through its Annual Reports and various articles published in its Economic Bulletins, as



well as by publishing provisions and documents related to oversight on its website.<sup>4</sup>

The oversight function could also involve promoting the transparency of rules and conditions within the different payment systems with a view to improving the quality of the services provided, the efficiency of instruments and confidence in money and other means of funds transfers.

#### *Oversight function: activities and strategies*

The Banca d'Italia's Oversight Office has promoted the improvement of the transparency of the conditions applied to payment services and the shortening of the handling time for cheques and credit transfers. In this context, the ABI established a project called "PattiChiari", through which Italian banks make public their conditions. Furthermore, a protocol was drawn up by the ABI and the Italian Manufacturers' Association (Confindustria) regarding transparency and the maximum handling time for credit transfers.

Ensuring the security of payment instruments also involves, as a matter of priority, the prevention of criminal activities. In this respect, the Oversight Office, in cooperation with the Banca d'Italia's supervision departments and other competent authorities (particularly the Italian Foreign Exchange Office), took part not only in the work of the European Commission on Directive 2005/60/EC on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing (Third Money Laundering Directive), but also in the activities of the Financial Action Task Force. Now that Directive 2005/60/EC has been adopted, work is under way to implement it in Italian legislation. The Oversight Office actively participated in the drafting of the EC regulation on information on the payer accompanying transfers of funds, which seeks to prevent the misuse of payment systems for terrorist financing. At the domestic level, the Oversight Office also participated in the publication of a "Decalogue" comprising instructions for intermediaries with a view to

preventing money laundering; these instructions are to be applied also to innovative payment instruments (mainly e-money).

In order to enhance security and confidence in the use of cheques, an interbank database on irregular cheques and payment cards has been established pursuant to Law No 205 of 25 June 1999 and Legislative Decree No 507 of 30 December 1999, which amended the penalties imposed for writing bad or unauthorised bank or postal cheques. In particular, the database stores data on persons who have drawn bad cheques or written cheques without authorisation (with such persons being prohibited, on a system-wide basis, from issuing new bank or postal cheques for a period of six months).<sup>5</sup> That database also contains information on lost and stolen cheques, as well as on persons whose authorisation to use payment cards has been revoked.

As far as payment card fraud is concerned, the Oversight Office is working together with the Ministry of the Economy and Finance to establish a regulatory framework for a database to prevent the fraudulent use of cards and to create a mechanism to prevent "identity theft" in the field of financial services (particularly in the consumer credit sector). The oversight authority has urged the ABI to monitor fraud involving payment cards and to accelerate the migration of cards from magnetic strip to microcircuit technology.

4 In particular, the Banca d'Italia informs market players on a case-by-case basis about major changes occurring in the payment systems (e.g. the impact of new regulations on the domestic market) and about major projects to be pursued by the oversight authority (for example, the Banca d'Italia's guidelines for business continuity were issued following the consultation of all interested parties, and the Banca d'Italia strongly supported the EPC public consultation on the SEPA credit transfer and direct debit rulebooks at national level).

5 In the past, legislation did not provide for system-wide prohibition, providing only for the right of the drawer's bank to refuse the drawer its right to issue cheques in the event of a dispute – or the lodging of the requisite legal statement – resulting from cheques being drawn against insufficient funds. This procedure, which is still valid, consists of a legal statement being lodged by a notary or other public officer to certify the non-payment of cheques. It permits the holder of the cheque to take action against the endorsers and their guarantors in order to recover the funds.

As regards relations with other authorities, the oversight function analyses the payment systems market available to customers and provides the necessary support to the Antitrust Authority for any enquiries concerning antitrust issues relating to payment instruments. In particular, in 2004 the Oversight Office worked on a project aimed at introducing the “multibank system” to the PagoBancomat POS network. This system enables retailers to use more than one bank for the collection of amounts due on payment card purchases. In cooperation with the Banca d’Italia’s supervision departments, the oversight authority examines customers’ complaints about instruments and payment systems with the aim of assessing whether the complaints in question actually indicate inefficiencies in the payment system (regardless of the outcome of specific disputes).

The oversight function of the Banca d’Italia is also involved in the authorisation procedure for the launch of Italian electronic money institutions (for which its Supervision of Financial Intermediation Department is primarily responsible). In general, the following factors are considered: (i) the growing number of software-based e-money schemes for retail payments promoted by non-financial institutions and carried out via the internet; and (ii) the widespread diffusion of technology and standards for smart cards, both for payment and telephone cards, which is raising new concerns regarding the security, efficiency and transparency of payment instruments in open networks. Particular attention is paid to the security aspects of e-money, both at the Eurosystem level with the work to streamline the EMSSO report on the security requirements for e-money schemes, and at the national level. Since only banks and electronic money institutions (within the meaning of the Electronic Money Institutions Directive) are permitted to issue electronic money, the Banca d’Italia monitors initiatives involving multipurpose prepaid instruments and evaluates new schemes submitted for its approval.

The Oversight Office is working together with the ABI, enterprises, infrastructure service providers and the public administration on a strategy to adopt best practices and innovative solutions in order to implement end-to-end straight-through processing in Italy. In this vein, the oversight authority promotes the full use of ICT for the integration of commercial and financial flows. The following action has been taken to this end:

- surveys have been conducted on the use of electronic payments;
- ad hoc analyses and surveys have been carried out on e-invoicing;
- relationships between banks and enterprises have been fostered with a view to establishing cross-industry standards (particularly for the CBI service); and
- the extension of innovative Italian solutions at the European level within the SEPA project has been promoted.

The Banca d’Italia has been working with the CNEL, together with representatives of academia, the banking sector and industry, to overcome obstacles in this field.<sup>6</sup>

The operational continuity of systemically important infrastructures is essential. In 2003 the Banca d’Italia issued its “Guidelines for the business continuity of systemically important payment infrastructures” on the basis of the indications emerging from the national forum coordinating business continuity initiatives for the whole financial sector. These guidelines

<sup>6</sup> A document offering a series of observations and suggestions was approved by the CNEL. There was a broad consensus on the need for Italy to develop fully automated, integrated processes between banks and businesses in the various phases of trade and financial operations, extending straight-through processing to the entire value chain. To this end, the CNEL reaffirmed the need for strategy guidelines to foster access to online services and effective liaison between the parties concerned. Alignment with the standardisation projects sponsored by the EU, SWIFT and the UN was considered essential to facilitate international integration between electronic invoicing and payments. In this regard, the interoperability of electronic signatures is essential for the integration of commercial and financial flows.

were the subject of a formal consultation addressing major banking groups, financial market operators and infrastructures.<sup>7</sup>

The Banca d'Italia, following the approval of the 2004 provisions on oversight, started its own oversight activity for SIA, the service provider for the STEP2 system. This oversight activity is based mainly on the evaluation of the infrastructure against Core Principle VII for the control of operational and security risks.

The Oversight Office monitors the operations of two "quasi-clearing and settlement systems", which manage the retail payments of cooperative banks (ICCREA and Cassa Centrale Raiffeisen). Particular attention is paid to the efficiency and reliability of the systems in terms of risk control mechanisms and the clarity of the rules and responsibilities of the parties involved. The Oversight Office actively participates in the Eurosystem's oversight activity as regards the evolution of correspondent banking, which is carried out through a biannual survey in which ten Italian banks participate.

The Oversight Office is committed to monitoring the national migration plan for the implementation of the SEPA. In particular, the Banca d'Italia participates in the ABI's Payment and Settlement Services Committee (Comitato ABI per i servizi di pagamento e regolamento), the forum in which banks and the national central bank meet in order to discuss reforms and strategies for payment systems.

In 2005 major Italian banks decided to move their national traffic to the PE-ACH STEP2. The Oversight Office analysed the documentation provided and monitored the migration project – which went live in November 2006 – with the aim of assessing the impact of the migration project on the smooth functioning of the Italian payment system (see also the euro area chapter).

### 1.2.3 OPERATIONAL ROLE

The operational role of the Banca d'Italia in payment and securities settlement systems

currently entails the issuing of banknotes, the management of both BI-REL and BI-COMP, and the management of government payments as a fiscal agent.

As a result of market privatisation and the operational framework established by the CLFI, securities clearing and settlement services and the activities of the CSD have undergone profound changes. First, the Banca d'Italia no longer acts as the custodian or administrator of government securities, with such activities now carried out by Monte Titoli (see Section 1.3.5). Second, Monte Titoli has also replaced the Banca d'Italia as the manager of the clearing and settlement systems for securities transactions.

The operational role of the Banca d'Italia is thus limited to the management of BI-REL and BI-COMP. Those two systems are managed directly by the Banca d'Italia with a view to closely monitoring the risks inherent in their functioning and ensuring open access to them. The Banca d'Italia seeks to ensure a level playing-field among intermediaries and to strengthen the reliability of the systems in accordance with the guidelines laid down at the international level.

The introduction of the euro and the resulting boost to the integration of European financial markets has led the Banca d'Italia to reassess the range of financial services traditionally offered to its foreign correspondents, primarily non-euro area financial institutions. Among these services, the Banca d'Italia provides a gateway for correspondents to access TARGET; it is also about to develop a number of services related to cash management, the investment of

<sup>7</sup> Those requirements include: minimum deadlines for the recovery and resumption of operations, depending on the importance and the technical and procedural characteristics of the services; the operation of backup sites; and effective liaison with system operators and outsourcers. Special attention must be paid to the development, implementation and monitoring of business continuity plans. This requires the direct involvement of decision-making bodies, the clear assignment of tasks and responsibilities, and the effective communication of the essential features of the plan throughout the organisation.

reserves, securities custody and portfolio management.

#### **1.2.4 ACTIVITIES IN THE AREA OF FINANCIAL MARKETS AND SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

The Banca d'Italia has a supervisory role in those markets which are relevant for monetary policy (i.e. MTS, the wholesale screen-based market for government securities, and the screen-based interbank deposit market e-MID).

With regard to MTS, the surveillance carried out by the Banca d'Italia seeks to ensure overall market efficiency and orderly trading conditions. Since the market is managed by a market management company (MTS SpA), the Banca d'Italia also supervises this company. In accordance with the CLFI (see Article 66), this market management company is subject to the approval of the Ministry of the Economy and Finance, in consultation with the Banca d'Italia and Consob. The Ministry of the Economy and Finance, in consultation with the Banca d'Italia and Consob, approves the rules of the market. The surveillance of market activity is based on the continuous monitoring of trading and a flow of information (data feed procedures) stored in a database which is updated in real time. The Banca d'Italia can ask the market management company to provide any kind of data, information and documentation deemed necessary, and may carry out on-site inspections and, if necessary, impose penalties on the market management company. The Banca d'Italia may also request that intermediaries provide additional information on trading activity.

For e-MID, this surveillance activity is based on the acquisition of trading data stored in a database which is updated in real time. Trading rules are established by the market management company e-MID SpA. The Banca d'Italia may request information from the market management company and ask to see trading records (see Article 79 of the CLFI). Direct access to the data feed procedures allows the Banca d'Italia to monitor prices, volumes, bid-

offer spreads and dealers' market positions; further information may be obtained upon request. The Banca d'Italia may impose administrative penalties on e-MID organisers and participants (see Articles 190 and 195 of the CLFI).

As far as securities settlement procedures are concerned, the Banca d'Italia has both regulatory and supervisory responsibilities with regard to the overall infrastructure (i.e. CSDs, SSSs and clearing houses), as well as the possibility of carrying out on-site inspections and, if necessary, imposing penalties. The Banca d'Italia also supervises the settlement system's management companies. The final objective of this framework of tasks, to be exercised in cooperation with Consob, is the containment of the systemic risk inherent in inefficient settlement systems and the prevention of system crises.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 THE ITALIAN BANKERS' ASSOCIATION**

The ABI is a representative body for the whole banking system and is responsible for coordinating interbank agreements and establishing uniform operational and accounting methods in interbank relations. It promotes, in conjunction with the Banca d'Italia, the broadest possible participation in interbank initiatives and the dissemination of information. The ABI participates in the SEPA, the migration programme for which is monitored by the Banca d'Italia (see the euro area chapter).

#### **1.3.2 THE INTERBANK CONVENTION ON AUTOMATION**

The Interbank Convention on Automation (CIPA) is an interbank association the primary function of which is to plan initiatives in the field of interbank automation with regard, in particular, to telecommunications systems and interbank applications. It also coordinates the implementation of joint projects, particularly with regard to the development of the payment system. The CIPA comprises the Banca d'Italia,

which acts as chair and carries out the secretariat function, the ABI, 79 banks, and 12 bodies and companies working in the field of interbank automation.

### **1.3.3 NATIONAL CENTRE FOR INFORMATION TECHNOLOGY IN PUBLIC ADMINISTRATION**

The CNIPA works to implement the policy guidelines set out by the Ministry of Innovation and Technology. The Banca d'Italia works together with this authority, in accordance with the role assigned to the Banca d'Italia by Presidential Decree No 137 of 7 April 2003, in laying down the rules for electronic funds transfers between private parties, between government bodies, and between the latter and the former.

### **1.3.4 THE MAIN INTERBANK SERVICE PROVIDER**

SIA is one of the most important Italian service providers. It provides network services and interbank applications and technological platforms for banking and financial intermediaries and markets. At the beginning of 2000 the Banca d'Italia ended its participation in SIA, which in 1999 had merged with CED-Borsa (a software company which manages stock exchange trading systems), thereby consolidating the management of IT systems for market and settlement systems. SIA is the service provider for the infrastructure of the STEP2 system, which is owned and managed by the EBA (see Introduction). In 2007 it merged with another infrastructure service provider (SSB), which is particularly active in card processing.

### **1.3.5 MONTE TITOLI**

Monte Titoli is a company offering the central custody and administration of transferable securities (shares and bonds), as well as securities settlement services. Since December 2002 Monte Titoli has been part of the Borsa Italiana Group, following a purchase offer made by Borsa Italiana, which brought its stake in Monte Titoli's share capital up to almost 99%.

In 1986 a law governing the CSD's activities in private securities was adopted (see

Law No 289/86), which provided that Monte Titoli was the only company authorised to administer private securities.

In 1998, following the implementation of the CLFI, a number of positive developments affected the set of rules governing the CSD. In particular, the CSD was no longer considered to have a monopoly, as the CLFI reinforced the principle of privatisation and liberalisation, thereby increasing competition (see Article 80 of the CLFI).

In August 2000 Monte Titoli was authorised to manage government bonds, which until then had been managed by the Banca d'Italia; the actual transfer of government securities from the Banca d'Italia to Monte Titoli took place at the end of 2000. Thus, there is now a single Italian CSD managing both private and government securities.

Dematerialisation has increased the importance of the CSD, as the ownership of securities has to be proven by means of book entry.

In October 2000 Monte Titoli was authorised to operate the Express RTGS system, which, from the outset, always operated in parallel with the LDT procedure. Moreover, since January 2004 Monte Titoli has managed a new clearing and settlement system, Express II (see Section 4.3.1), which has replaced LDT.

Monte Titoli also operates the daily matching correction system RRG, which manages the matching of transactions and the routing of matched transactions to the settlement services. The RRG system also establishes the bilateral balances between the CCPs participating in the SSS (Cassa di Compensazione e Garanzia (CC&G) and LCH.Clearnet; see Section 4.2.2) and their counterparts and sends them to the settlement services.

In August 1998 the European Central Bank included Monte Titoli in the list of securities settlement systems meeting the standards set by the European Monetary Institute (EMI) for the

credit operations of the European System of Central Banks (ESCB).

### 1.3.6 THE CASSA DI COMPENSAZIONE E GARANZIA

The CC&G acts as a central counterparty (see Section 4.2.1). The company is controlled by Borsa Italiana.

### 1.3.7 THE COMPANIES AND STOCK EXCHANGE COMMISSION

Consob plays a regulatory and supervisory role in regulated markets other than wholesale markets for government bonds (see Section 1.1, paragraphs headed “The legal framework for regulated financial markets”). The aim of its supervisory responsibilities is the transparency of markets, orderly trading and the protection of investors.

In accordance with the CLFI, Consob may give authorisation to market management companies, having verified the fulfilment of certain requirements (see Article 63). It also plays a supervisory role in regulated markets and market management companies (see Articles 73 and 74). In the event of serious irregularities in the management of markets or in the administration of management companies, and wherever it is necessary for the protection of investors, Consob adopts extraordinary measures to protect markets and management companies from crises (see Article 75).

### 1.3.8 THE MARKET MANAGEMENT COMPANIES

Market management companies have a number of regulatory and supervisory responsibilities. In accordance with the CLFI (see Article 64), market management companies must: (i) provide the structures and services necessary for the proper functioning of the market; (ii) manage the market from an operational point of view; (iii) be responsible for permitting, precluding or suspending trading for given intermediaries and financial instruments; and (iv) ensure compliance with any rules contained

in insider trading laws (e.g. as regards the registration of operations and the distribution of relevant information subject to public disclosure requirements).

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Legal tender in circulation in Italy comprises euro banknotes and coins.

The use of cash is still widespread. Indeed, the use of cash in Italy relative to GDP is almost twice the euro area average. Several factors contribute to this situation, including the low level of financial sophistication in certain areas of the country. On the supply side, the banking sector has built a large, cheap ATM network which has led to increases in the number of cash withdrawals from current accounts. However, in recent years initiatives such as PagoBancomat (debit cards for use at POS terminals) have created a break with past trends.

#### *Other liabilities issued by the Banca d'Italia*

The Banca d'Italia issues cashier's cheques for amounts of between €500 and €500,000 against cash payments for the corresponding amount. In the past, these instruments were used for certain non-recurring payments made by the national central bank on behalf of public entities (e.g. tax refunds and severance pay to central government employees).

Following reforms in the area of government payments, the use of such liabilities issued by the national central bank is declining significantly. In 2005 the Banca d'Italia issued around 377,000 cashier's cheques (compared with around 1.6 million in 1999), for a total value of €6,959 million.

In 1999 the electronic payment order procedure (EPOP) was launched in order to reduce the use of paper-based documents and to perform



government payments via credit transfers.<sup>8</sup> The progressive integration of the payments of the Ministry of the Economy and Finance into the interbank payment system is being carried out through the widespread use of interbank procedures.

## 2.2 NON-CASH PAYMENTS

In 2005 an average of 60 transactions per capita were performed using instruments other than cash (compared with 45 in 1999). At the end of 2005 there were more than 38 million current accounts, by comparison with 31 million in 1999 and 25 million in 1994. The number of postal current accounts stood at 4.5 million at the end of 2005, representing a significant increase. Moreover, for every 10,000 inhabitants there were more than 5 bank branches (and around 2.4 post office branches).

According to the most recent survey, 76.9% of Italian households had a bank account in 2004 (with 73.2% having current accounts and 11.1% having deposit accounts), while 18.8% had a postal account (with 12.1% having current accounts and 8.5% having deposit accounts). The use of accounts differs enormously between northern and southern Italy: in northern Italy, the ratios are 91.7% and 15.4% respectively for bank accounts and postal accounts; by contrast, in southern Italy, they are 53.1% and 23.8%. Bank instruments account for approximately 97% of the value and 70% of the volume of non-cash payments. Cheques and banker's drafts are no longer the most commonly used bank instruments in Italy. Their importance is declining, while the use in transactions of direct debits, credit transfers and cards is growing, with payment cards accounting for 34.6% of the volume of non-cash payments. In recent years increases have been observed in both the number and use of payment cards, although the number of payment card transactions per inhabitant is still some way below the European average (see Section 2.2.4).

### 2.2.1 CREDIT TRANSFERS

416 million bank credit transfers were effected in 2005, with a total value of €5,546 billion. These instruments are used widely throughout the economy, even for retail transactions (e.g. for the direct crediting of wages, salaries and pensions).

The Banca d'Italia has encouraged a thorough overhaul of the network, which includes three specialised procedures handling retail, large-value and cross-border credit transfers. All three procedures allow the settlement of transactions in central bank money and the execution of payments within predefined time-limits.

The retail credit transfer procedure, which handles transactions of less than €500,000, settles transactions through the "Retail" subsystem of BI-COMP (see Section 3.3.2). The ABI's regulations provide for maximum payment execution times, ranging from same-day execution for urgent credit transfers initiated before 11 a.m. CET (which is relatively expensive and represents only a small percentage of retail credit transfers) to up to three days for ordinary credit transfers.

The large-value credit transfer procedure, which handles transactions of over €500,000, is settled through the BI-REL system on the centralised accounts at the Banca d'Italia (see Section 3.2).

Since 1999 the cross-border credit transfer procedure, which was designed mainly for large-value payments, has allowed the transfer of customers' funds through the TARGET system for payments within EU countries. However, around one in three cross-border transactions is still executed and settled through banks' correspondent accounts.

<sup>8</sup> EPOP has been one of the most important innovations in government accounting. It represents the practical implementation of the automation of spending procedures as set out in Presidential Decree No 367 of 20 April 1994.

Over the last few years there has been a shortening of handling times for credit transfers and an improvement in value dating. Both were reduced to less than two days in 2005. There was also a reduction in the charges for credit transfers, which was due, in part, to customers' increased use of internet transactions and automated credit transfers.

For credit transfers, the aim is to introduce rules and mechanisms to enable certainty, along the lines of what is being done for cross-border credit transfers in Europe.

### 2.2.2 BANK CHEQUES AND BANKER'S DRAFTS

In 2005 447 million bank cheques (including banker's drafts) were drawn on bank customers' current accounts, with a total value of €1,099 billion.

In recent years interbank procedures for handling cheques have been revised. At present there is:

- a procedure for large-value cheques (over €3,000) and large-value banker's drafts (over €12,500); and
- a procedure for low-value cheques (up to €3,000) and low-value banker's drafts (up to €12,500).

Low-value cheques and banker's drafts (representing around 80% of total cheques processed) are handled through a truncation procedure, implemented in 1990, which replaces physical delivery with electronic interbank messages. Data on low-value truncated cheques are conveyed through the RNI at night (on day D) and are settled through the clearing system the following day (D+1). Dishonoured cheques must be reported within three days (i.e. by D+4). In July 1999 Poste Italiane also adopted this procedure for postal cheques.

Despite these improvements, the time it takes for banks to credit funds to their customers remains significantly longer than should be possible following the reform of the interbank

payment system carried out over the last decade. The large number of days required for funds to be available on customers' current accounts remains a major concern with regard to cheque payment services in Italy. Hence, cheques are still perceived to be a risky means of payment involving higher levels of administrative costs and more implicit pricing than other non-cash payment instruments.

In 2005 the average number of days required in order for funds to be available on customers' current accounts was approximately 6.3 working days (with a maximum duration of 7.7 days) – or 9.0 working days including the finality of the transaction (with a maximum duration of 10 days). The charge implicit in the value date (i.e. the customer's interest-free period) averaged 4 days, with differences between banks ranging from 2 to 6 days. This service could be improved both by reconsidering the conditions being applied and by introducing clear charging mechanisms.

The ABI's "PattiChiari" project, through which Italian banks make public their conditions, sets 7 working days as the limit for making funds from negotiated cheques available to the beneficiary. In March 2006, of the 87 banks participating in the project (which accounted for 75% of the banking system's customer current accounts), 61 made funds available in 7 days, 16 in 6 days, 9 in 5 days and 1 in 4 days. For cheque funds, notwithstanding the improvement observed, the time required for funds to become available remains longer than the average for the main industrial countries.

### 2.2.3 COLLECTION ORDERS (DIRECT DEBITS AND BANK RECEIPTS)

Italian banks execute collection orders, mainly on behalf of enterprises and public utilities. These orders are originated by creditors and may be executed by debtors through different methods of payment; direct debits are carried out by means of pre-authorised debits of payers' current accounts; collections of bank receipts are executed through other methods of payment (see below).

In 2005 the number of payments made by direct debit was 463 million (compared with 277 million in 1999). This instrument is mainly used by firms to collect recurrent low-value payments (e.g. utility bills). Bank receipts are used by firms to collect trade and other credits. Bank receipts perform an economic function similar to that of bills of exchange, but do not have the same legal protection (they cannot, for example, be disputed). Nevertheless, as a result of lower stamp duty and the implementation in the 1980s of the electronic bank receipt procedure to process RIBA, bank receipts have gradually replaced bills of exchange. In 2005 approximately 309 million commercial bills and paper-based and paperless bank receipts were collected through the banking system; the share of RIBA increased from 38% in 1989 to 70% in 1994, and to 94% in 2005.

Furthermore, over the last four years a corporate banking procedure has been made available in response to firms' need to rationalise and reduce the cost of their banking transactions, a need which has been compounded by the fact that firms hold accounts at different banks. This new procedure enables businesses to transmit their payment and collection orders to banks by means of a telematic link to a single institution which acts as an agent. Today the CBI service involves 80% of all Italian banks and accounts for 95% of all credit transfers and collections handled by the Italian banking system in volume terms. It also covers over 400,000 firms, most of which are SMEs.

#### 2.2.4 PAYMENT CARDS

##### *Cards with a debit function*

At the end of 2005 there were over 32 million debit cards (bank and postal cards) in circulation which could be used to make cash withdrawals at ATMs. The majority of these could also be used to execute payments through a nationwide network of POS terminals.

The use of debit cards for withdrawals at ATMs is widespread and growing. In 2005 around 690 million withdrawals (an average of

approximately 22 per card) were made, compared with around 499 million in 1999.

The use of debit cards at POS terminals is expanding rapidly. In 2005 around 732 million such transactions were effected, compared with 248 million in 1999, representing an average annual growth rate of 18% over the period 2000-05. The average number of transactions per card rose from 3.9 in 1990 to 12.4 in 1999, and to 25 in 2005. PagoBancomat is the major nationwide debit card network. At the end of 2005 the PagoBancomat trademark was shared by some 600 banks, which liaise closely with one another. These banks can compete in offering payment services to their own customers, cardholders and retailers. The system provides for: (i) a common infrastructure; and (ii) a single trademark and a common set of rules and standards established by the ABI and the Convention for the Management of the Bancomat Trademark, which are responsible for organising and operating network facilities.

##### *Cards with a credit function*

In recent years growing competition among suppliers of payment services and a change in consumers' habits have led to an increase in both the number of credit cards in circulation and the use of those cards. At the end of 2005 28.8 million credit cards (mostly "charge" cards) issued by banks or non-banking intermediaries (travel and entertainment cards) were in circulation, compared with 12.3 million in 1999. Nevertheless, in 2005 only 49% of the credit cards in circulation were used at least once every six months. There were more than 463 million credit card operations in that year, representing an average of 16 operations per card in circulation.

There are two main initiatives in the area of credit cards. Since 1968 a single bank has been able to issue cards linked to the Visa network. Since 1985 it has been possible for cards to be issued on a cooperative basis by Cartasi, a company owned by approximately 140 shareholders, most of which are banks. Around

400 banks are currently taking part in the latter scheme, which represents the main nationwide credit card network (in terms of both issuers and acquirers) and is linked to both Visa and MasterCard. In the last few years a number of individual banks have launched proprietary cards directly linked to international networks. Travel and entertainment cards are issued by American Express and Diners Club.

The migration of cards from magnetic strip to microcircuit technology is accelerating, owing to the SEPA commitment and the fight against fraud.

#### *E-money*

In recent years the numbers of e-money and prepaid cards have increased remarkably. At end-2005 3.3 million prepaid instruments were operational (representing 11.4% of credit cards in circulation), a total exceeding 4 million when cards provided by institutions in exercise of the freedom to provide services are included. The use of such cards is growing (with 20 million transactions in 2005, compared with 9 million in 2004), as is the average value of such transactions (€79 in 2005, compared with €61 in 2004). Prepaid cards seem to be tailored to people without bank accounts who want to make small-value payments. That customer segment is particularly interested in prepaid postal cards, the number of which doubled in 2005 and which now outnumber prepaid bank cards (of which there were 1,581,000 in circulation at end-2005, their number also having doubled in that year).

In March 2006 a total of 32 schemes were in operation, compared with 30 a year earlier. Most are instruments that can be used within national and/or international networks. There is only marginal use of restricted, or proprietary, spending networks, which testifies to users' clear preference for broadly usable instruments.

#### *ATM and POS networks*

In recent years both the ATM and POS networks have grown rapidly. There were 40,577 ATMs

at the end of 2005. Currently most ATMs are interconnected within the nationwide Bancomat network. All banks located in Italy which comply with Bancomat's rules are eligible for membership.

There were 1,045,041 POS terminals at end-2005, compared with 435,000 at end-1999. However, their use remains limited (with an average of 1,072 operations per terminal in 2005) by comparison both with other industrialised countries and with domestic ATM cash withdrawals (an average of around 17,001 operations being effected per ATM terminal in 2005). Most POS terminals are linked to the PagoBancomat network.

#### **2.2.5 POSTAL INSTRUMENTS**

Over the past few years postal financial payment services (i.e. money orders, credit transfers, giro transfers and payment cards) have been growing rapidly so as to compete with the banking system. In 2005 they further strengthened their presence in the payment services industry, with the number of postal current accounts increasing by over 9%, while the number of bank accounts rose by 0.74%. In 2005 there were 4.6 million postal current accounts and 12,994 post offices. The number of postal prepaid cards has increased remarkably (see the section above on e-money). In recent years the number of postal cards with a cash withdrawal and a debit function has grown rapidly (standing at around 5 million at end-2005). The postal card network is a proprietary network co-branded with Maestro for debit cards and Visa/MasterCard for prepaid cards.

Law No 71/1994 has gradually changed the legal status of Poste Italiane, which, since February 1998, has been a private company owned by the Ministry of the Economy and Finance (then the Ministry of the Treasury). The main objectives of the privatisation process have been to improve payment services, to achieve a higher degree of automation, to determine a pricing policy aimed at covering production costs and to establish uniform

methods for the disclosure of terms and conditions of contracts.

As part of the integration of bank and postal networks, Poste Italiane was integrated into the aforementioned procedures. That process was completed by 2001.

### 2.2.6 PAYMENTS OVER THE INTERNET

In 2005 internet payments increased as a percentage of total payments, mainly owing to the growth of credit transfers ordered online (of which there were 35 million in 2005), which increased by 52% as compared with 2004 and accounted for 8.5% of all credit transfers. In particular, online transactions using credit cards increased by 27%. Although less numerous in terms of absolute value, the number of online payments by means of prepaid instruments and e-money tripled in 2005 (to stand at 5 million), thanks to the use of postal prepaid cards over the internet. The growth of payments over the internet is due mainly to the fact that fees for such transactions are lower than those applied to other non-cash payments.

#### *E-payments for the public administration*

With specific regard to the process of modernisation within the public administration, the CNIPA has established an open standard that defines interoperability profiles. According to that standard, the Italian public administration must accept and use only electronic documents signed using certificates compliant with that standard, regardless of the certification authority. This standard currently includes two types of signed electronic envelope: the first is based on “detached” PKCS#7 and the second on PDF (RFC 3778). This standard is widely applied also in the private sector. The Italian banking sector also uses the Identrus standard, which is currently not accepted by the public administration. As regards XML-Signature, a specific profile is currently under evaluation in order to make this signature available to the public administration in the near future. This is the first step towards the extension of e-payments within the public administration. Likewise, enterprises are experiencing an

increased reliance on e-invoicing, which could lead to greater use of automated payment solutions in the future. The Banca d'Italia actively supports this process, which may further the modernisation of the Italian payment system and foster the elimination of remaining legal barriers.

### 2.3 RECENT DEVELOPMENTS

The Banca d'Italia, together with the rest of the banking and financial community, is engaged in further initiatives to improve the efficiency and reliability of payment instruments and to facilitate the transition towards the use of the most efficient instruments for each type and size of transaction.

Against this background, particular attention is being paid to the need to migrate national payment instruments to European schemes and, consequently, to adjust the regulatory frameworks. The Banca d'Italia actively supports the initiatives of the Italian banking community in European fora, as well as fostering dialogue between all stakeholders and the adoption of cross-industry standards and acting to eliminate legal, technical and commercial barriers to the full integration of the Italian payment sector into the European community.

## 3 INTERBANK CLEARING AND SETTLEMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

The current structure of the Italian payment system is the outcome of two far-reaching reforms implemented in the 1980s and 1990s.

The first reform, dating back to the end of the 1980s, had two main aims: (i) promoting settlement in central bank money by reducing recourse to correspondent accounts; and (ii) boosting the efficiency of payment instruments. These goals were achieved by implementing automated interbank procedures – with

specialist procedures for each type of transaction (credit transfers, cheque truncation, etc.) – including common standards and a maximum time-limit for the execution of payments.

The second reform, introduced in the mid-1990s, was primarily aimed at minimising systemic risks in an environment characterised by a substantial rise in the volume of transactions. This objective was pursued through the implementation of two specialist systems: BI-REL for large-value payments and BI-COMP for retail transactions. Both systems are managed directly by the Banca d'Italia. The distinction between retail and large-value payments is based not on value, but on the operating procedures used to handle the transactions; payments using the same operating procedure are all settled in the same network. Following the start of Monetary Union, BI-REL became the domestic component of TARGET.

Following these reforms, the value of interbank payments settled in central bank money increased significantly, from six times GDP in 1988 to 40 times GDP in 1998. The reduction in foreign exchange transactions following the start of Stage Three of EMU has led to a fall in interbank payments compared with previous years. In 2005 the total value of interbank payments processed by the Banca d'Italia's systems was 31 times GDP. In the same year transactions settled on a gross basis via the BI-REL system accounted for 87% of the total value of payments.

The Italian clearing and settlement system is currently characterised by high levels of reliability and efficiency, ensured by extensive use of automation. Although BI-REL has proved to be successful in achieving its objectives, at the beginning of the 2000s the Banca d'Italia launched a project to carry out a functional upgrade of the system, prompted by technological changes and the needs of markets and participants. The project sought to improve the efficiency, reliability and security of BI-REL, with the ultimate goal of strengthening the competitiveness of the Italian market-place

and increasing its openness to foreign intermediaries. The success of the new version of the system – which was launched in June 2003 – is confirmed by the fact that BI-REL (together with the German and French systems) has been chosen as the basis for developing the new unified RTGS platform for the euro area. As regards its retail settlement system, the Banca d'Italia has recently been making some changes to BI-COMP with the aim of bringing the system into line with all the features and prerequisites established at European level for PE-ACHs.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

A new version of the gross settlement system BI-REL, the Italian component of TARGET, was successfully launched on 16 June 2003. That new version, the strategic and operational guidelines for which were formulated together with the Italian banking community, is characterised by enhanced service levels, greater flexibility in handling payments, increased standardisation and fully automated payment procedures (straight-through processing).

#### 3.2.1 OPERATING RULES

In BI-REL, all payments are settled continuously and individually through the centralised accounts held by intermediaries at the Banca d'Italia. The system guarantees the final and irrevocable settlement of payments.

Each centralised account is composed of reserve and overdraft sub-accounts. Payments are settled by making use of the liquidity available in both of these accounts and by using an automatic mechanism without any need for intra-account transfers. More specifically, the debiting of payments takes place in the following order: first, the reserve account, on the basis of the liquidity available (both voluntary reserves and minimum reserves), and then the overdraft account. The crediting of payments is carried out in the reverse order.



Under the harmonisation principles laid down for TARGET, intraday liquidity – which is unlimited but fully collateralised – is provided by the Banca d'Italia free of charge; remote participants are not eligible for intraday liquidity, nor do they have access to the marginal lending facilities. Banks can transfer securities in real time from their centralised securities accounts to their securities accounts at the national central bank.

The queuing mechanism for payments temporarily without cover has been designed to enhance the flexibility of the system by preventing banks from re-entering payments. Each participant sets an order of priority for payments to be settled and can modify it at any time; some specific payments entered into BI-REL are automatically assigned a non-modifiable priority by the system (notably the multilateral balances generated by BI-COMP and the overnight balances stemming from the net securities settlement system Express II). Within the order of priorities, the execution of payments occurs on a FIFO basis. At the end of the day the “first available, first out” (FAFO) mechanism is activated in order to minimise the number of cancelled payments (see Section 3.2.4). BI-REL provides the liquidity reserve for settlement of the cash balance resulting from the overnight cycle of the securities settlement system Express II (see Section 4.3.1) and that for urgent payments (such as CLS payments<sup>9</sup>). In addition to the liquidity reserve, a cash reservation function is available to participants. In addition, BI-REL provides a payment optimisation mechanism, which is applied automatically throughout the operating day, by settling queuing payments on a bilateral basis. BI-REL provides for the optimisation of payments with a view to the simultaneous bilateral settlement of individual payments in participants' queues once settlement account balances have been verified. This function is applied automatically throughout the operating day and reduces intraday liquidity needs and cuts transaction settlement times.

In addition to the usual enquiries on the status of payments and accounts, BI-REL also provides new interactive services that allow participants to: (i) determine the urgency of payments at the time of entry; (ii) modify the priority of a queued payment or cancel it altogether; (iii) modify their liquidity reserves in real time; and (iv) make enquiries regarding incoming domestic payments in other participants' queues.

The complete set of operating rules is available on the Banca d'Italia's website ([www.bancaditalia.it](http://www.bancaditalia.it)).

### 3.2.2 PARTICIPATION IN THE SYSTEM

Participation in BI-REL is open to banks, investment firms, organisations providing clearing and settlement services, and public sector bodies. BI-REL provides for a two-tier participation model:

- direct, where the participants (118 as at December 2005) hold a settlement account in BI-REL, have full access to the system's functions, enter transactions and settle on behalf of indirect participants; and
- indirect, where the participants (646 as at December 2005) use the settlement services provided by direct participants and do not hold a settlement account. Indirect participants may, in turn, be: (i) “active” if they can enter their own transactions and have access to a limited set of system functions, or (ii) “passive” if they do not enter their own transactions and delegate this to direct participants.

This new participation model is fully consistent with the TARGET Guideline.

### 3.2.3 TYPES OF TRANSACTION HANDLED

In accordance with the specialisation principle, both large-value domestic payments and cross-border payments within TARGET (regardless

<sup>9</sup> Payments between the Italian CLS settlement members and CLS Bank.

of their value) are settled in BI-REL. In particular, the payments settled include: (i) transactions carried out directly by participants; (ii) the multilateral balances generated by BI-COMP for retail payments; (iii) the cash leg of securities transactions settled on a net basis using the DvP system (Express II procedure; see Section 4.3.1); (iv) the cash leg of securities transactions, including monetary policy operations, settled on a real-time gross basis using the DvP system (Express II procedure; see Section 4.3.1); (v) transactions concluded on e-MID (see Section 3.2.10); and (vi) cross-border transactions via TARGET.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The BI-REL operating day has six cut-off times in order to avoid any concentration of payments towards the end of the day. The times are as follows:

- I 7 a.m. CET cut-off time (opening of the system) for settlement of CLS payments and the overnight balances resulting from the net securities settlement system Express II.
- II 12 noon CET cut-off time for settlement of the multilateral balances generated by BI-COMP for retail payments.
- III 1 p.m. CET cut-off time for settlement of the cash leg of securities transactions originated by the Express II procedure.
- IV 5 p.m. CET cut-off time for entering payments on behalf of customers (domestic and cross-border). The FAFO mechanism used to optimise the settlement of queued cross-border customer payments starts operating at this time. After this process has been completed, uncovered customer cross-border payments are cancelled.
- V 6 p.m. CET cut-off time for executing interbank transactions (domestic and cross-border). The FAFO mechanism for the optimisation of queued payments (domestic customer payments, as well as domestic and

cross-border interbank transactions) starts operating at that time. Uncovered payments are cancelled and will not be automatically re-entered the following day.

- VI 6.30 p.m. CET cut-off time for recourse to the standing facilities. If intraday liquidity is not paid, it is automatically transformed into marginal lending.

### 3.2.5 TRANSACTION PROCESSING

BI-REL uses the SWIFT infrastructure. The use of SWIFT international standards for messages carrying payment instructions guarantees a high degree of automation. For domestic interbank transactions, the system uses SWIFT's FIN Copy service, which is very widely used in Europe, with the Y-Copy transmission mode ensuring the confidentiality of the commercial information in the messages. The standard requires the formation of a group of SWIFT users with exclusive authorisation to exchange messages concerning the system. The new SWIFTNet network provides participants with interactive real-time functions for data enquiries and for operational actions such as revoking queued payments and modifying queued payments' priorities or the size of participants' liquidity reserves.

### 3.2.6 SETTLEMENT PROCEDURES

In BI-REL, debt transactions are posted for settlement provided that funds (including intraday liquidity) are available; temporarily uncovered payments are queued. Participants can modify the priority of queued payments or cancel them altogether. Payments are not revocable once the debtor's account has been debited.

### 3.2.7 CREDIT AND LIQUIDITY RISKS

Given that payments in BI-REL are settled one by one in central bank money, and considering the very short settlement time (payments temporarily without cover wait, on average, less than 30 seconds), the credit risk is minimised. With regard to the ancillary systems BI-COMP and Express II, given that the securities and cash accounts of the receiving

institutions are credited only after checking the availability of funds in the accounts of the debit institutions, no fundamental risk occurs.

BI-REL minimises the risk that a shortage of intraday liquidity will cause payments to be blocked in the queues of one or more participants – with the possibility of ensuing gridlock – through a number of mechanisms and instruments. These features include: intraday liquidity provided by the Banca d'Italia free of charge; the option for participants to mobilise all of their compulsory monetary reserves over the maintenance period; the optimisation of queued transactions; the gridlock resolution mechanism; and the provision of real-time information both on payments settled and queued, and on account balances.

### 3.2.8 PRICING

BI-REL's fee structure gives banks an incentive to enter their payments into the system and to use the interactive services available. The new prices fully cover operating and development costs, which are calculated in accordance with the high-level principles laid down by the ECB's Governing Council. That pricing policy comprises: (i) regressive fees for domestic payments (along the lines of those in place for cross-border payments), which range from €0.15 to €0.75 depending on the volume of payments settled per month; (ii) ad hoc fees for additional services provided via SWIFTNet, which consist of a yearly fee of €3,000 for direct participants and €1,000 for indirect active participants; and (iii) ad hoc fees for services external to the gross settlement component.

### 3.2.9 STATISTICAL DATA

At the end of 2005 there were 118 direct participants and 644 indirect participants in BI-REL. In the same year the system processed 10.4 million transactions, with a total value of €32,881 billion, 23.2 times GDP. Payments sent to other TARGET components accounted for 31.7% of the total value. An average of 900 transactions per day were settled in BI-REL via the optimisation of queued domestic payments; these had an average daily value of €4.6 billion.

The savings for participants in terms of liquidity as a result of this mechanism amounted to 33% of the value of the payments optimised. The average use of intraday liquidity decreased to €4.6 billion.

### 3.2.10 THE SCREEN-BASED MARKET FOR INTERBANK DEPOSITS

An important role in the distribution of liquidity is played by e-MID, which is the main Italian uncollateralised money market. That market is supervised by the Banca d'Italia and managed by the private company e-MID SpA. The average daily volume traded on e-MID was more than €21.6 billion in 2005. The market has been growing internationally and has become one of the leading markets in Europe: non-resident banks currently negotiate around 73% of the total volumes traded on the market.

The market currently has 200 members, 117 of which are Italian and 83 of which are foreign.

Trades between participants holding an account at the Banca d'Italia are settled automatically via BI-REL; other deals are settled semi-automatically via TARGET.

## 3.3 THE RETAIL PAYMENT SYSTEM

BI-COMP is the main interbank clearing and settlement system for retail payments and is owned and managed by the Banca d'Italia. BI-COMP is the only Italian ACH operating on a multilateral and nationwide basis.

BI-COMP consists of two sub-systems – “Local Clearing” and “Retail” – and the “National Clearing” procedure. The National Clearing procedure determines a final multilateral balance for each participant by summing the balances of the Retail and Local Clearing sub-systems. The multilateral balance is settled daily in the BI-REL/TARGET system at the cut-off time of 12 noon CET. In 2005 BI-COMP cleared an average of over 7.4 million items per day, with an average daily value of over €12.4 billion.

The Provisions of the Governor of the Banca d'Italia of 11 November 2005 changed the allocation of responsibilities between the Banca d'Italia and the market as regards the different phases of the clearing process. The need for new regulations was suggested by the ongoing developments in payment systems at Community level. In fact, the new regulations bring the Banca d'Italia's stance in operating low-value clearing and settlement systems into line with that of most other European central banks, which do not directly handle the preparatory phases (leaving them to the market) and are, instead, involved only in the "core" of the clearing process (i.e. the calculation of the multilateral clearing balances and settlement via central bank accounts). The regulations also take account of the actions undertaken by the European banking industry and the Community authorities for the realisation of the Single Euro Payments Area and, in particular, the creation of the pan-European automated clearing house.

Against this background, the Banca d'Italia has recently been making some changes to the BI-COMP system, aimed at bringing it into line with all the features and prerequisites established at European level for SEPA-compliant infrastructures.

Participation in BI-COMP is open to central banks, banks, non-banking credit institutions with headquarters in European Union Member States, entities providing clearing and/or settlement services, the treasuries and ministries of finance of EU Member States' central or regional governments, and public sector entities of EU Member States. The sole requirement to be met by institutions applying to BI-COMP is that they be able, from a technical point of view, to interact with the system. In addition to participating in the National Clearing procedure, applicants can join either one or both sub-systems. The Banca d'Italia is an ex officio participant.

In the light of the SEPA project, a number of major Italian banks have recently decided to

migrate to the STEP2 system all domestic retail payments vis-à-vis one another, with all other retail operations being cleared by the BI-COMP system.

### 3.3.1 THE LOCAL CLEARING SUB-SYSTEM

The Local Clearing sub-system handles paper-based operations requiring the physical exchange of items (i.e. non-truncated bank cheques, banker's drafts, bills and postal instruments). With a view to rationalising exchange procedures, reducing costs and meeting the needs of the banking system, the exchange of paper-based transactions has, since 1998, been confined to two clearing houses (located in Rome and Milan), instead of being handled at every branch of the national central bank as before. Accounting information on paper-based transactions is forwarded by participants by means of the RNI or a floppy disk. The transmission of accounting information to the clearing houses through the RNI takes place between BI-COMP's closing time on the day preceding settlement and 9.30 a.m. CET on the settlement day. The Local Clearing sub-system then automatically determines the bilateral and multilateral balances among participants and sends them to the National Clearing procedure at 12 noon CET.

### 3.3.2 THE RETAIL SUB-SYSTEM

The Retail sub-system handles low-value paperless payments.

The Provisions of the Governor of the Banca d'Italia of 11 November 2005 changed the allocation of responsibilities between the Banca d'Italia and the market as regards the different phases of the clearing process. Under those Provisions, the operating powers of the Banca d'Italia within the Retail sub-system are less extensive than under the previous legislation, being limited to the phase in which the multilateral clearing balances are calculated and transmitted for settlement. The preceding phases (i.e. the exchange of instruments and the activities prior to determining the balances) are left to the market.

The Retail sub-system receives payment information from three service providers (ACHs operating on a bilateral basis) which operate in a competitive environment. These manage a set of standardised interbank procedures, geared to specific types of payment, which run on the RNI. These procedures cover: ATM and POS transactions, truncated cheques, direct debits and retail credit transfers (i.e. credit transfers with a value of less than €500,000). The Banca d'Italia is currently considering setting up its own service provider, which would operate in competition with the private ACHs.

Each ACH calculates the bilateral balances for each participant and sends this information to the Retail sub-system. The Retail sub-system, in turn, calculates the aggregate bilateral and multilateral balances for all participants and sends these balances to the National Clearing procedure.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 THE WHOLESALE SCREEN-BASED MARKET FOR GOVERNMENT SECURITIES

The MTS market is organised and managed by MTS SpA, a company founded in 1998 when the market was privatised.

MTS SpA is responsible for the operation of MTS Italy, MTS Corporate and Bondvision. MTS Corporate is an electronic platform for wholesale trading in corporate bonds. Bondvision is a dealer-to-customer electronic platform. MTS Italy and Bondvision are regulated markets subject to the supervision of the Banca d'Italia and Consob and regulated by the Ministry of the Economy and Finance.

MTS SpA is controlled (with holdings of 60.37%) by MBE, a holding company owned by Euronext SA (which has a 51% stake) and Borsa Italiana SpA (which has a 49% stake). The minority shareholders in MTS SpA are banking

and financial groups, both foreign (34.33%) and Italian (5.30%).

MTS is a quote-driven market where market-makers are required to quote instruments assigned by MTS SpA for a minimum period of time (five hours) during the trading day, complying with bid-offer spread limits set in line with the maturity/liquidity of each issue.

Market rules regulate listing, market access and quoting activity. Only banks and financial institutions are eligible to participate in MTS. There are two different types of participant: primary dealers (market-makers) and dealers. Dealers can act only on proposals quoted by primary dealers.

Proposals are anonymous. Participants become aware of the identity of trade counterparties only after the execution of the trade. For this reason, a dealer willing to buy (or sell) a bond cannot choose its counterparty and is forced to trade on the basis of the best proposal available. Counterparty risk is mitigated by the adoption – on a voluntary basis – of a central counterparty service offered by the Cassa di Compensazione e Garanzia in partnership with LCH.Clearnet SA (see Section 4.2.2).

MTS Italy provides an electronic trading platform which offers great benefits both to members and to the issuer (the Ministry of the Economy and Finance) in terms of straight-through processing capabilities, reduced transaction costs, market transparency, efficiency and liquidity.

Five different types of Italian government bond are traded on MTS: floating rate certificates (CCTs); fixed rate bonds (BTPs); inflation-linked bonds (BTIs); and zero-coupon securities (BOTs and CTZs). In addition, some selected euro bonds can be traded. The minimum trade size is €2.5 million (€5 million for benchmark bonds).

MTS Italy also has an electronic segment for repurchase agreements (PCT), allowing

participants to manage their liquidity positions and their securities portfolios more effectively.

Two types of contract can be concluded on PCT: (i) special repos, where a specific security is named; and (ii) general collateral repos, where identification of the security takes place only at the end of the trading day.

There is no distinction made between participants in terms of roles, and there are no quoting obligations.

The type of repurchase agreement used is the buy and sell back agreement, which signifies the transfer of all ownership rights to the buyer. All securities traded on MTS may be the subject of repurchase agreements on PCT. Proposals are anonymous if the quoting participant uses one of the two CCPs acting on the MTS market; if this is not the case, proposals are not anonymous. Trades can be made on the basis of any quotation shown on the market, even if it is not the best available proposal.

Finally, MTS Italy has a grey market where it is possible to trade Italian government bonds for which the Ministry of the Economy and Finance has announced an auction, but which have not yet been issued. Securities are negotiable on the MTS grey market until the day on which the auction takes place. The following day the securities begin to be traded on the cash market.

#### 4.1.2 THE ITALIAN STOCK EXCHANGE

Borsa Italiana SpA is the company responsible for the organisation and management of the Italian stock exchange system. It was created following the privatisation of financial markets in 1997. Its capital is held mainly by Italian intermediaries. Borsa Italiana controls both the CC&G and Monte Titoli (with holdings of 86.37% and 98.77% respectively).

Borsa Italiana operates under the rules laid down in the Consolidated Law on financial intermediation (i.e. Legislative Decree No 58

of 24 February 1998) and in Consob Regulation No 11768 of 23 December 1998 implementing the provisions of that Decree which relate to markets.

With regard to the markets that it operates, Borsa Italiana is responsible for establishing:

- conditions and procedures for the admission to, and the suspension and exclusion from, trading of financial instruments and intermediaries;
- the obligations of intermediaries and issuers; and
- the procedures for the acquisition, publication and dissemination of prices and information.

Supervision of Borsa Italiana's operations is carried out by Consob, which also approves its rules.

Borsa Italiana operates several segments where securities are grouped on the basis of homogeneous features (high-growth companies, blue chips, exchange-traded funds, bonds, etc.). In addition, Borsa Italiana operates a market for equity derivatives (IDEM).

As regards participation in the markets operated by Borsa Italiana, domestic, EU and non-EU investment firms and banks can be admitted directly to trading on their own account or on their customers' account, provided that they are authorised intermediaries pursuant to the Consolidated Law on financial intermediation. "Locals" (foreign intermediaries dealing only on their own account) and "Agenti di cambio" (Italian intermediaries dealing only on their customers' account) can also apply for membership.

Non-resident institutions may access the market directly or through an Italian branch.

All participants must fulfil organisational and technical requirements and demonstrate their



ability to settle and clear their contracts, whether directly or through a settlement/clearing agent. Intermediaries must meet these requirements not only in order to gain initial admission to trading, but also in order to continue to be eligible to trade.

Moreover, members must give evidence of the adequacy of the technological systems used for trading and associated activities.

Contracts concluded on the equity market are guaranteed by a central counterparty system run by the Cassa di Compensazione e Garanzia.

Trades are settled through the Italian settlement system operated by Monte Titoli, Express II, which combines net and gross settlement functionalities for transactions involving non-derivative financial instruments. Monte Titoli also manages the matching of transactions and the routing of the matched transactions for settlement.

Contracts concluded on euro bonds are settled at Clearstream Banking Luxembourg or Euroclear. The members active in this segment must, therefore, demonstrate their participation in at least one of these systems, either directly or via another company.

#### 4.1.3 ALTERNATIVE TRADING SYSTEMS

The TLX market began its operations as an alternative trading system (ATS) under Article 78 of the Consolidated Law on financial intermediation. In August 2003 it was authorised by Consob to act as a regulated market. TLX SpA now operates a regulated market (TLX) and an ATS (EuroTLX). Bonds and government bonds may be traded on TLX. Banks and investment firms (national, EU and non-EU firms authorised to provide investment services) can access the TLX market.

EuroTLX offers the possibility of trading covered warrants, quotas or shares of collective savings investment bodies, and asset-backed securities.

TLX and EuroTLX transactions are settled in Monte Titoli, Euroclear and Clearstream Banking Luxembourg.

## 4.2 CLEARING

### 4.2.1 CASSA DI COMPENSAZIONE E GARANZIA

#### *Institutional aspects*

A general regulation issued by the Banca d'Italia, with the agreement of Consob (see the legal provision of 22 October 2002 on the guarantee systems for transactions involving financial instruments under Articles 68, 69.2 and 70 of the CLFI), establishes the general framework for guarantee systems.

The Banca d'Italia and Consob approve the operational rules laid down by the clearing house only after having verified:

- that the clearing house fulfils certain requirements (a minimum level of capital, as well as rules on accounting and organisational segregation); and
- that operational rules laid down by the company comply with the regulations issued by the authorities and are likely to ensure the efficiency, soundness and stability of the system.

There is no specific authorisation for clearing houses and there is no approval of the appointment of clearing house managers. The latter are not required to meet specific conditions.

The general regulation concerning clearing house services determines categories of participant and establishes risk containment measures, such as the collection of initial margins and, where necessary, intraday margins, as well as the monitoring of members' daily exposures.

#### *Operational aspects*

The Cassa di Compensazione e Garanzia manages the central counterparty guarantee

system in Italy. It carries out this function by taking on the counterparty risk from the moment of execution of the contracts, acting as the buyer to every seller and as the seller to every buyer, and becoming the guarantor of the final settlement of the contracts. It performs this activity on: (i) the equity and derivatives markets operated by Borsa Italiana; and (ii) the markets regulated and managed by MTS SpA and BrokerTec (in relation exclusively to Italian government bonds).

The risk management system adopted by the CC&G is based on multiple levels of protection.

#### **Margin system**

Initial margins are called on a daily basis to cover the theoretical costs of liquidation which the CC&G would incur, in the event of a member's default, in order to close the open positions in the worst possible market scenario within a maximum price variation range called the "margin interval".

Intraday margins are called by the CC&G in the event of sudden sharp price variations or a member's excessive overall risk exposure.

#### **Default funds**

Two default funds exist: one for the equities and derivatives markets, and one for the MTS market (for both the cash and repo segments). These provide additional protection aimed at covering risks associated with sharp price/interest rate movements.

In addition to the above risk control measures, the CC&G sets financial and operational requirements for its members. The financial requirements are proportionate to the markets cleared. As far as general clearing members are concerned, capital requirements depend also on the number of non-clearing members represented (see below).

It is possible to participate in the CC&G as either a clearing or a non-clearing member.

A clearing member becomes a counterparty to the CC&G. Clearing members are divided into individual clearing members (ICMs) and general clearing members (GCMs). ICMs may clear their own and customers' transactions, whereas GCMs, in addition to proprietary and customer transactions, also clear the contracts of their non-clearing members.

A non-clearing member (NCM) does not become a CC&G counterparty. Non-clearing members must be market members and must sign an agreement with a general clearing member.

It is possible for both resident and non-resident institutions to become members of the CC&G. Members include, in particular:

- EU and non-EU banks and investment firms which are authorised to provide investment services in Italy;
- banks and investment firms that provide investment services in Italy subject to mutual recognition;
- other members of the markets guaranteed by the CC&G which, as NCMs, have signed an agreement with a GCM; and
- other entities, such as the Ministry of the Economy and Finance and legal persons, including non-Italian entities, which manage other central counterparty guarantee systems (as special clearing members).

In December 2005 there were 129 members, including 72 banks (of which 17 were foreign) and 52 investment firms (of which 26 were foreign).

#### **4.2.2 AGREEMENT BETWEEN THE CC&G AND LCH.CLEARNET SA**

MTS SpA, the Cassa di Compensazione e Garanzia and LCH.Clearnet SA signed an agreement in December 2002 on the establishment of a central counterparty service for Italian government bond transactions

executed on MTS Italy and EuroMTS. The service has been extended to cover BrokerTec.

That agreement states that the use of a CCP by market members is optional. Participants in the MTS and EuroMTS markets can choose between the services of the CC&G and those of LCH.Clearnet. In order to make this right of choice effective, the two CCPs are linked: each central counterparty is a general clearing member of the other. Moreover, the methods for calculating margins and capital requirements for membership are the same for the two CCPs.

### 4.3 SETTLEMENT

#### 4.3.1 THE EXPRESS II SYSTEM

Express II is the Italian clearing and settlement system, managed by Monte Titoli, for transactions involving non-derivative financial instruments. In January 2004 the implementation of Express II was completed and the system replaced the LDT settlement system operated by the Banca d'Italia.

##### *Institutional aspects*

Securities settlement systems are governed by a general regulation issued by the Banca d'Italia with the agreement of Consob (see the legal provision of 8 September 2000 on the clearing and settlement of transactions involving non-derivative instruments under Article 69 of the CLFI).

That regulation establishes categories of direct participant and general management criteria for the settlement of securities. Specific risk management measures must be adopted, such as intraday finality, a queuing mechanism, and a reduction in the time between the collection of data on transactions and the settlement of those transactions. Minimum requirements must also be met in terms of risk containment and the finality of transactions settled. Moreover, operating hours must be consistent with those of BI-REL.

As far as access criteria are concerned, access to the settlement system is restricted to banks

and investment firms that are authorised to provide investment services in Italy (or are permitted to provide such services subject to mutual recognition), asset management companies, other financial intermediaries, Italian stockbrokers, CSDs and other institutions which operate SSSs or netting and guarantee systems, and some public entities. Foreign participants may have access to the system on a remote basis. In particular, a foreign institution which acts as a CSD or as the operator of an SSS or a guarantee system may participate in the Italian securities settlement system on a remote basis, provided it fulfils the following requirements: (i) it is subject to supervisory measures equivalent to those in force in Italy; and (ii) there is an agreement between the supervisory authorities of Italy and those of the foreign institution's home country concerning the exchange of information and the adoption of reciprocal conditions.

Participants may clear and settle securities transactions both on their own account and on behalf of other authorised intermediaries. Moreover, participants may either settle their cash positions directly on their BI-REL accounts or appoint a bank participating in BI-REL to settle for them.

##### *Operational aspects*

The Express II procedure and the structure of the accounts of the CSD permit complete segregation between intermediaries' proprietary positions and those of their customers. It also allows settlement banks to manage the securities positions of each of their institutional customers separately, thus avoiding the risk of commingling.

Express II clears and settles the following types of transaction carried out on the official markets and over the counter:

- outright transactions and repos involving Italian government securities carried out on MTS;

- stock exchange transactions involving equities, corporate bonds and Italian government securities;
- outright and repo transactions involving listed and unlisted securities carried out over the counter; and
- monetary policy operations (in the real-time gross settlement procedure).

The system combines the real-time gross settlement procedure with net settlement functionalities in a single environment. Both the RTGS and net settlement functionalities are based on the DvP mechanism, whereby the cash and securities are settled simultaneously. The settlement of securities takes place by book entry on the securities accounts held by participants at Monte Titoli, and the settlement of cash is carried out in central bank money through a real-time link to the BI-REL system.

Express II has two net settlement batches: an overnight batch and a daylight batch.

The net settlement process is activated only on the basis of the availability of cash and securities. In the event that the participant does not have sufficient securities or cash and is not eligible for securities lending or intraday liquidity, the transaction will be excluded from the netting batch. The transaction will be excluded during the optimisation process on the basis of an algorithm that identifies the maximum amount of transactions that can be settled taking into account the availability of securities and cash. Information on the availability of cash is provided by the Banca d'Italia before BI-REL closes. During the overnight cycle the liquidity reserve can be increased by the amounts resulting from coupons and redemptions of government securities and, if necessary, by the granting of additional intraday liquidity, which is activated with automatic collateralisation.

Having established the availability of securities and cash, the cash multilateral net balances

resulting from the overnight clearing procedure are settled through BI-REL at the start of the business day; simultaneously the securities multilateral net balances resulting from the overnight clearing procedure are settled in the CSD's accounts. Transactions that are not covered by the securities or cash are set aside and placed in the subsequent daylight net settlement batch; if there is still a shortage of securities and/or cash, the transactions will be forwarded to the RTGS component.

The real-time gross settlement procedure settles, on a gross basis, what is left of the net batches, as well as any transactions submitted to the system by participants. The procedure is also used for the settlement of monetary policy operations.

The settlement procedure of the securities leg is carried out in the following way:

- for every transaction, the system checks the securities account balance of the seller, reserves the securities and sends information to BI-REL for the cash settlement; and
- if the securities are not available on the seller's account, the system starts the queue management process. Queued transactions are periodically processed in the following order of priority: monetary policy operations; priority input by the intermediary; matching time (FIFO); and stockbuilding on the seller's securities account (FAFO).

The settlement stages of the cash leg are as follows:

- BI-REL checks the cash account balance of the buyer, settles the cash leg and sends information to the SSS, which settles the securities leg using the reserved securities; and
- if funds in the cash account are not available, payments are queued.

As far as indirect cash settlement is concerned, participants in Monte Titoli are allowed to settle their cash positions by means of a settling bank; Express II offers cap management mechanisms to settling banks to allow them to keep their funds exposure under control.

Transactions concluded on regulated markets are always sent to the net component of Express II and are settled on a rolling basis (T+3 for outright transactions, while for repo transactions the settlement lags are as follows: T+0 for overnight transactions; T+1 for “tomorrow next” transactions; and T+2 for all other transactions). In 1999 the possibility of settling with same-day value (T+0) was introduced for repo transactions involving government securities (“overnight repo”). The time lag for same-day settlement has now been extended owing to the RTGS component of Express II.

Transactions concluded on the OTC market can be sent either to the net component or to the RTGS component and are settled with the settlement lag agreed between the parties.

In December 2005 there were 121 participants in the net settlement functionalities and 129 in the real-time gross settlement procedure (with eight intermediaries participating only in the RTGS component).

#### **4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE BANCA D’ITALIA**

As regards monetary policy operations, the settlement of open market transactions is completely automated as a result of the Express II real-time gross settlement procedure (see Section 4.3.1).

Once the cash and securities positions for each bank have been calculated by the Banca d’Italia, the relevant information is transmitted to Monte Titoli. In the event that the settlement day of a refinancing operation coincides with the reimbursement day of previous open market operations, credit and debit positions are netted

by the Banca d’Italia so as to calculate each intermediary’s net securities and cash positions.

Where domestic securities are used for such transactions, the automatic entering of the cash and securities positions into the RTGS procedure ensures the real-time settlement of both legs. In particular, the cash leg is settled through the accounts held at the national central bank (in the BI-REL system); the securities leg is settled by way of book entries on the accounts held by the Banca d’Italia and other counterparties at Monte Titoli. In the case of foreign securities, the RTGS procedure is used if the security concerned is managed by Monte Titoli through cross-border links. Otherwise, the CCBM channel is used.

As far as the use of securities as collateral for the intraday liquidity is concerned, an automatic procedure allows intermediaries to transfer securities in real time in the course of the operational day from their accounts to the Banca d’Italia’s securities accounts at Monte Titoli. The amount of intraday liquidity available in BI-REL for each intermediary automatically varies according to the collateral at its disposal. The same procedure is used for the marginal lending facility. Such a procedure allows for a high level of flexibility in the management of collateral, enabling the amount held by intermediaries to be optimised in accordance with the real liquidity needs.

The management of collateral for each intermediary is carried out by the Banca d’Italia and consists of: (i) evaluating securities; (ii) applying the initial margin; and (iii) verifying the adequacy of collateral on a daily basis.



# LUXEMBOURG

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## LIST OF ABBREVIATIONS

ABBL	Luxembourg Bankers' Association – <i>Association des Banques et Banquiers Luxembourgeois</i>
Bancomat	The national debit card scheme
BCL	<i>Banque centrale du Luxembourg</i>
CBF	Clearstream Banking Frankfurt AG
CBL	Clearstream Banking Luxembourg SA; the Luxembourg-based ICSD
CETREL	A company providing services in the field of electronic payment systems – <i>Centre de Transferts Electroniques</i>
CSSF	The Luxembourg financial supervisory authority – <i>Commission de Surveillance du Secteur Financier</i>
LIPS-Gross	Luxembourg Interbank Payment System – Gross Settlement; the Luxembourg RTGS component of TARGET
LIPS-Net	Luxembourg Interbank Payment System – Net Settlement; an electronic interbank clearing system for retail payments
Minicash	The national e-money scheme
UCIs	Undertakings for collective investment

## INTRODUCTION

The Luxembourg payment landscape has undergone significant changes since the introduction of the euro.

At the institutional level, the Institut Monétaire Luxembourgeois (IML) was transformed on 1 June 1998 into two different entities, namely the Banque centrale du Luxembourg (BCL) and the Commission de Surveillance du Secteur Financier (CSSF) for the supervision of financial institutions in Luxembourg.

With the creation of the Banque centrale du Luxembourg and its full membership of the ESCB, new responsibilities in the area of payment systems arose. The Luxembourg TARGET component LIPS-Gross (Luxembourg Interbank Payment System – Gross Settlement), which went into operation on 4 January 1999, had to be set up, and on the retail payment side the electronic clearing system LIPS-Net (Luxembourg Interbank Payment System – Net Settlement), which settles its multilateral net position in LIPS-Gross, completely replaced manual clearing.

Both LIPS-Gross and LIPS-Net have continuously evolved through technical enhancements. Furthermore, the introduction of the euro and the ensuing project of setting up the Single Euro Payments Area (SEPA) have heralded the beginning of a period of consolidation and integration in the field of payment systems – in particular a consolidation of infrastructures and harmonisation of means of payment – which will in turn have an impact on the future of the two Luxembourg payment systems.

Recent years have also been characterised by a continuous increase in the use of electronic means of payment. This development has in all likelihood been furthered by the central organisation of payment services in Luxembourg and by the small size of the country, enabling a high concentration of services. In addition to the traditional use of debit and credit cards, a

prepaid card scheme called Minicash was launched at the beginning of 1999.

On the securities side, the Luxembourg-based ICSD Clearstream Banking Luxembourg SA (CBL), which acts as the Luxembourg CSD for handling securities used in ESCB credit operations, has undertaken new measures to enhance securities settlement, notably the automated Daytime Bridge and the Night-time Link.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL AND LEGAL FRAMEWORK

On the institutional side, considerable changes have occurred over the past couple of years. The Institut Monétaire Luxembourgeois, which was the issuing authority for Luxembourg banknotes and coins during the monetary association between Luxembourg and Belgium, was, at the time, in charge of the supervision of credit institutions. It was transformed into the Banque centrale du Luxembourg on 1 June 1998.

Since its inception, the Banque centrale du Luxembourg has been a full member of the ESCB and has therefore contributed to the performance of the System's tasks.

In the meantime, the supervision of financial institutions has been entrusted to a separate body, the Commission de Surveillance du Secteur Financier, acting under the authority of the Ministry of Finance. The CSSF was created on 1 January 1999.

As regards the legal framework, there is no specific legislation governing all aspects of payment systems. Most aspects are covered by private contracts between financial institutions, customers and retailers.

The Code Civil, which contains some very general provisions on payments, lists the various forms of payment, including payment by compensation and payment by novation. Other laws deal with cheques, bills of exchange, collateral, the monetary authority and the supervision of the financial sector.

In April 1999 Directive 97/5/EC on cross-border credit transfers, which obliges credit institutions to disclose the terms and conditions of fees on retail cross-border credit transfers, was transposed into national legislation (Loi du 29 avril 1999 portant transposition de la

directive 97/5/CE concernant les virements transfrontaliers).

The transposition into national legislation of Directive 98/26/EC (Settlement Finality Directive), which is intended to reduce the legal risks associated with participation in designated payment and securities settlement systems, was adopted by parliament in January 2001 (Loi du 12 janvier 2001 portant transposition de la directive 98/26/CE concernant le caractère définitif du règlement dans les systèmes de paiement et de règlement des opérations sur titres).

Regulation (EC) No 2560/2001 on cross-border payments in euro, which foresees the harmonisation of domestic and cross-border fees, has been in force since July 2003.

### I.2 THE ROLE OF THE BANQUE CENTRALE DU LUXEMBOURG

The role of a national central bank with regard to payment systems is generally twofold: it acts both as operator of the payment systems and as overseer of the payment and securities systems in general. The first task derives from the need for national central banks to have a secure channel for the execution of their monetary policy and the need for commercial banks to be able to process their interbank payments in a secure environment. The second task stems from the public need for secure and efficient payment channels which safeguard both the stability of the financial system as a whole and public confidence in money.

#### I.2.1 PAYMENT SYSTEMS OVERSIGHT

The Organic Law of the Banque centrale du Luxembourg refers only in very general terms to its responsibilities in the area of payment systems. In particular, the Banque centrale du Luxembourg is not formally entrusted with oversight in the area of payment and securities settlement systems. However, given the competence assigned to the ESCB with regard to clearing and payment systems by virtue of Article 105 of the Treaty establishing the European Community and

Articles 3 and 22 of the Statute of the ESCB, the Banque centrale du Luxembourg acts in accordance with the guidelines and rules elaborated at the ESCB level.

At the domestic level, the issue of payment systems oversight has been discussed within the context of the transposition of the EC Settlement Finality Directive into Luxembourg law. The transposed Settlement Finality Directive clearly entrusts the Banque centrale du Luxembourg with the oversight of the main payment and securities settlement systems in which it participates. At present, the policy lines adopted at the ESCB level are enforced using informal methods such as moral suasion.

This moral suasion is exercised through informal tools (e.g. the monitoring of systems, the maintenance and analysis of statistical data, and the management of settlement accounts), which are used at regular meetings held with the banking community within different groups and committees at the national level.

The Banque centrale du Luxembourg publishes a yearly report on financial stability (*Revue de Stabilité Financière*), which is available on the BCL's website under "Publications/Bulletins BCL". The report elaborates, inter alia, on the BCL's mandate with regard to the oversight of payment and settlement systems.

### 1.2.2 OPERATIONAL ROLE

On the operational side, the Banque centrale du Luxembourg holds current accounts for all credit institutions which are subject to the minimum reserve requirements of the ESCB, as well as for other public institutions and selected private institutions from the financial sector.

In order to have an account with the Banque centrale du Luxembourg, counterparties must comply with the general terms and conditions governing the operations of the Banque centrale du Luxembourg.

In particular, the Banque centrale du Luxembourg does not execute payment orders

on an intraday basis for any counterparty with insufficient collateral. In any event, only credit institutions subject to minimum reserve requirements are granted intraday credit against full collateralisation of their overdraft.

Debit balances at the end of the business day are transformed into overnight credit facilities (called the marginal lending facility), upon which the marginal lending rate determined by the Governing Council of the ECB is charged.

The most important transactions recorded on the current accounts held with the Banque centrale du Luxembourg relate to the depositing of cash with, and withdrawal of cash from, the national central bank, and to monetary policy operations and other payments processed through the RTGS system.

On the cash side, the Banque centrale du Luxembourg is responsible for the circulation of euro banknotes and coins.

On the non-cash side, the Banque centrale du Luxembourg operates the RTGS system LIPS-Gross, through which the national central bank offers the Luxembourg banking community a secure and sound way to channel its large-value payments across Europe. LIPS-Gross also offers settlement facilities to the domestic clearing system LIPS-Net.

As regards securities, the Banque centrale du Luxembourg and Clearstream Banking Luxembourg have put in place a new settlement model. This model, called the "Night-time Link", enables CBL to grant credit to its Luxembourg customers during its night-time processing on the basis of collateral held at the Banque centrale du Luxembourg.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

Several private sector bodies are involved in the field of payment and securities settlement systems in Luxembourg.

### **1.3.1 LUXEMBOURG BANKERS' ASSOCIATION**

The Luxembourg Bankers' Association (ABBL) is the representative body for Luxembourg-based banks. It is responsible for protecting the interests of the Luxembourg banking community both domestically and internationally, and for enhancing cooperation within the banking community. With regard to payment systems in particular, it promotes the use of operational and technical standards in conjunction with the Banque centrale du Luxembourg, the CSSF, CETREL (see below) and the banking community.

### **1.3.2 CENTRE DE TRANSFERTS ELECTRONIQUES**

The Centre de Transferts Electroniques (CETREL) is a company which has been set up by nine banks and the Post Office to provide services in the field of electronic payment systems. It manages the ATMs and POS terminals supporting Bancomat (the national debit card scheme), Minicash (the national e-money scheme) and Visa and Europay products. It also operates the central application of the electronic clearing system (LIPS-Net) and a communication infrastructure used by financial institutions for reporting to the Banque centrale du Luxembourg and the CSSF.

### **1.3.3 EUROPAY LUXEMBOURG/VISA LUX**

Both of these companies organise the collection, encoding and dispatching of payment instructions from the Europay/MasterCard and Visa networks. Both companies function with the technical support of CETREL.

### **1.3.4 CLEARSTREAM BANKING LUXEMBOURG SA**

CBL, formerly Cedelbank until the merger with Deutsche Börse Clearing at the end of 1999, is the Luxembourg-based ICSD, as well as the CSD appointed by the Banque centrale du Luxembourg for the handling of securities used within the framework of ESCB credit operations.

## **2 PAYMENT MEDIA USED BY NON-BANKS**

The various payment instruments in use in the Luxembourg domestic market are cash, credit transfers, cheques, direct debits, credit and debit cards and, more recently, electronic money.

### **2.1 CASH PAYMENTS**

Owing to the monetary association between Luxembourg and Belgium, both Luxembourg and Belgian banknotes and coins were legal tender in Luxembourg. With the introduction of the euro, this association and most of the related protocols have become obsolete.

Although no precise figures are available, the use of cash in purchase transactions has also been on the decline in recent years, within a context of wider acceptance of electronic means of payment by both consumers and retailers.

### **2.2 NON-CASH PAYMENTS**

The money available for cashless payments is deposit money, which accounts for around 98.5% of the monetary stock M1. Around 1.7% of deposits are held in Post Office accounts, the remainder in credit institutions. As in other countries, there are various types of deposit and account: fixed-term deposits, savings accounts and current accounts.

Current accounts, which allow withdrawals at any time, are normally the only type of account which can be used for cashless payments. As regards interest on accounts, different rates apply. For current accounts, banks offer, on average, 1.19% for households and 1.85% for non financial corporations. As for fixed-term deposits, there is no general rule for the interest rates applied. For savings accounts, banks usually offer a base rate comparable to the marginal deposit facility rate offered by the ESCB, a loyalty premium and an increase premium calculated on the basis of the net increase in savings.

Following the entry into force of Regulation (EC) No 2560/2001, cross-border transaction fees cannot be higher than domestic transaction fees. The banks in Luxembourg introduced a pricing scale for domestic credit transfers and ATM withdrawals with effect from 1 July 2003 (before that date such transactions were free of charge). The introduction of domestic transaction fees was accompanied by a marked fall in the fees for cross-border transactions within the EU.

One of the most significant developments of the past few years has been the growing use of electronic means of transmitting customers' payment orders to their banks. Most banks offer their corporate customers the possibility of presenting their payment orders via electronic networks. Private customers have the possibility of introducing their payment orders electronically, either via home internet banking and telephone banking services or via ATMs equipped with this feature.

### 2.2.1 CREDIT TRANSFERS

In terms of the value of transactions, the credit transfer is the most commonly used cashless payment instrument. The electronic clearing system LIPS-Net was launched at the end of 1994 to handle netting and the settlement of interbank customer credit transfers. This system offers the facility to clear both standard credit transfers and standing orders, which are used for recurrent payments. All banks offering retail payment services to their customers are either direct or indirect participants in the electronic clearing system.

The yearly increase in the volume and value of credit transfers averaged 3.7% and 7.8% respectively over the period 1999-2005. The total number of credit transfers exchanged in the electronic clearing system in 2005 amounted to 13.5 million, which represented an increase of 4% from 2004. The value of these payments exceeded €50 billion, representing a rise of 10% from 2004.

Comparison of the figures for credit transfers processed by LIPS-Net in 2006 with previous years would be misleading as the system ceased operations on 9 October 2006 (see Section 3.3.1.8).

### 2.2.2 CHEQUES

The decline in the use of cheques has accelerated with the removal of the eurocheque guarantee. Banks do not provide their customers with chequebooks. However, they continue to offer their own cheques to both corporate and retail customers. These cheques are mainly used as a substitute for cash in high-value payments.

Cheques are exchanged in the electronic clearing system LIPS-Net either via cheque truncation or, for high-value cheques (i.e. above €12,500), via physical exchange.

In 2005 the share of cheques in the electronic clearing system was only 0.9% in terms of volume and 3.8% in terms of value, as opposed to 6.5% and 10% respectively in 1999. The total number of cleared cheques decreased from 0.76 million in 1999 to 0.12 million in 2005. The value of exchanged cheques also decreased, but at a lower rate, from €3.6 billion in 1999 to €2.4 billion in 2005.

### 2.2.3 DIRECT DEBITS

In order to simplify the execution of payments, banks promote recurrent orders such as standing orders and direct debits. In the latter case, the payment is based on a prior written agreement between the debtor and its bank. Before a debit is made from the account, the debtor receives an invoice and thus has the opportunity to challenge the payment. Together with nine banks, CETREL operates a central application system for interbank direct debits. It collects the bank customers' invoices from the payees and generates the transfer orders. This centralised system is called DOM électronique.

As a result of the growing number of creditors participating in the system, the volume of direct debits has continuously increased over recent



years. In 2006 the total number of transactions amounted to 6 million, as opposed to 2.1 million in 1999. The value of transactions rose from €230 million in 1999 to more than €2 billion in 2006.

#### 2.2.4 CARD PAYMENTS

The total number of payment cards in circulation in Luxembourg at the end of 2006 exceeded one million. All of those cards are EMV-compliant.

Broadly, there are two types of payment card: debit cards and credit cards. The domestic debit card system, Bancomat, also incorporates both the Maestro function – which allows Luxembourg cardholders to withdraw cash at ATMs and to carry out POS transactions throughout the world (wherever the Maestro functionality is accepted) – and, since February 1999, an e-purse function called Minicash.

The most commonly used credit cards are Eurocard and Visa. American Express cards are offered by some domestic banks, but the clearing and settlement of transactions performed with these cards does not take place in Luxembourg.

##### 2.2.4.1 Debit cards

###### *Bancomat*

Bancomat is the nationwide debit card scheme, with a total of 500,000 cards – outnumbering the domestic population – in circulation at the end of 2006. Only 2,800 of these are purely Bancomat cards; the remainder are combined Maestro-Bancomat cards. Bancomat cards are standard debit cards which allow customers to withdraw cash at any ATM or to make payments at electronic points of sale in Luxembourg. Insofar as the card in question is a co-branded Maestro card, the holder can also withdraw cash at ATMs bearing the Maestro logo in almost any other European country.

Bancomat is run by a group of domestic credit institutions which have adopted common guidelines and standards for their electronic

payment system. The technical operation of the system is carried out by CETREL.

In 2006 there were 26.7 million Bancomat transactions (4.1 million at ATMs and 22.5 million at POS terminals, with total values of €600 million and €1,400 million respectively), meaning that each debit card issued was used for an average of 8 ATM withdrawals (with a total value of €1,200) and 45 POS transactions (with a total value of €2,800).

The costs of the system are shared by the banks and retailers, and by bank customers through the annual card fee. The banks' costs are shared between the customer's bank, which bears one-third of the cost, and the retailer's bank, which covers two-thirds of the cost. Retailers rent the equipment and pay a fixed amount, plus a percentage fee on each transaction.

##### 2.2.4.2 Credit cards

Visa and Eurocard/MasterCard are the most commonly used credit card brands in Luxembourg. They are offered by all banks involved in the retail banking business, as well as by the Post Office (Visa only). A total of 550,000 credit cards were in circulation at the end of 2006.

The clearing and settlement of most credit card transactions (that is, by Luxembourg cardholders in Luxembourg and abroad, and by foreign cardholders in Luxembourg) is performed by CETREL. For this purpose, two separate entities, Visa Lux and Europay Luxembourg, have been set up to ensure the collection, encoding and dispatching of payment instructions from the Visa and Europay/MasterCard networks respectively.

Only a couple of smaller banks operate their own networks.

The costs of the system are shared by the customers, which pay an annual card fee, and the retailers, which pay a retailer discount fee covering the service of guaranteed payment for all card transactions. Within this system,

retailers are paid on a daily basis, whereas cardholders are debited once a month.

#### 2.2.4.3 Electronic money

A multi-purpose prepaid card scheme, called Minicash, was launched in February 1999 by CETREL in cooperation with nine issuing institutions, including the Post Office.

In its first year of operation there were approximately 250,000 loading transactions with a total value of €2.5 million. The number of purchase transactions amounted to 57,000, with a total value of €1.5 million. The total float outstanding at the end of 1999 was approximately €1 million. Seven years later the float increased to €3.9 million. During 2006 cardholders carried out less than 3 million purchase transactions, with a total value of €6.8 million. They loaded their e-purses 160,000 times, yielding a total value of €7 million.

Further details on operational and functional aspects are given in Section 3.

#### 2.2.4.4 ATM and POS networks

CETREL manages most of the ATMs and POS terminals on behalf of the issuing credit institutions. Both ATMs and POS terminals are accessible via debit and credit cards using PIN codes (and all of the terminals are EMV-compliant). International credit card holders may also access these terminals.

At the end of 2006 the CETREL network consisted of approximately 8,600 EFTPOS terminals and 407 ATMs. In addition to these centrally managed ATMs, a few banks operate their own networks, which are, however, very small. POS terminals offer two different features: an online procedure and an offline procedure, both requiring verification for transactions exceeding a certain limit. In the medium term, all offline terminals will be replaced by online terminals accepting all kinds of payment card (debit, credit and electronic money cards).

All electronic terminals check the expiry date, validity and maximum withdrawal limit (i.e. per purchase/per week, although strict standards no longer exist, as it is up to banks to establish their own limits). Cash withdrawals at ATMs and POS transactions require PIN code verification. Both domestic and international card transactions are cleared by CETREL, which operates the licensed company Visa Lux, which was established in 1991. Verification of international cards can be obtained worldwide within 20 seconds.

The basic functionalities offered by ATMs are cash withdrawals and the verification of current account balances.

ATMs are mainly located on banks' premises. Some ATMs are integrated in self-service banking terminals, which allow customers to perform other types of transaction, such as ordering credit transfer forms or cheques, executing payment orders and making transfers from current to savings accounts.

## 2.3 RECENT DEVELOPMENTS

Over the past few years, most banks have started to offer online services to both their corporate and retail customers. These mostly include standardised services, such as the monitoring of accounts, the initiation of transfer orders or the communication of financial information. Initiating transfer orders using electronic means allows banks to automatically channel these into the clearing system and hence to reduce their handling costs.

The online ordering of stock exchange transactions has been added to the range of services offered by most banks.

Small-value mobile payments (i.e. payments involving the use of a mobile device at some stage of the transaction) are developing slowly.

### **3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS**

#### **3.1 GENERAL OVERVIEW**

Interbank payment systems in Luxembourg have undergone significant change over the past few years.

On the one hand, there was the launch, on 4 January 1999, of the domestic RTGS system LIPS-Gross, which is connected to TARGET via the Interlinking component. The electronic clearing system for retail operations, LIPS-Net, which began operations at the end of 1994 with only three participants, has, since mid-1998, completely replaced the manual clearing arrangements.

Furthermore, the current process of financial infrastructure integration, which will lead to a consolidation of national payment systems, will have an impact on the two Luxembourg payment systems in the near future.

Both systems are owned by economic interest groupings, which are special-purpose companies under Luxembourg law and are owned by the Banque centrale du Luxembourg and the participating banks.

#### **3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: LIPS-GROSS**

The RTGS system LIPS-Gross was developed in 1996 and has been in operation in Luxembourg since 4 January 1999.

LIPS-Gross is owned by an economic interest grouping, RTGS-L Gie, which encompasses all participants in the system, including the Banque centrale du Luxembourg.

The Banque centrale du Luxembourg chairs the Board and all the technical sub-groups. In addition to the Banque centrale du Luxembourg, ten participants are currently represented on the Board.

#### **3.2.1 OPERATING RULES**

The operating rules of the system were adopted by the Board of RTGS-L Gie at the end of 1998 and cover issues such as access criteria, obligations of both the Banque centrale du Luxembourg and the participants, types and formats of message exchanged, payment finality, crisis management and intraday credit provisions.

#### **3.2.2 PARTICIPATION IN THE SYSTEM**

Access to the system is granted to credit institutions falling under the scope of the banking supervisory authority. These institutions must be subject to the minimum reserve requirements of the ESCB, have an account with the national central bank and have access to Eurosystem intraday liquidity.

Further access criteria relate to applicants' operational and, in the case of foreign participants, legal soundness.

Final approval for the access of new participants is given by the Board of RTGS-L Gie, taking account of the above-mentioned criteria.

In December 2006 RTGS-L Gie had 31 participants, including the Banque centrale du Luxembourg. There are no indirect participants (such institutions being connected to the system through a direct participant).

#### **3.2.3 TYPES OF TRANSACTION HANDLED**

The system, which operates via the SWIFT FIN Copy service, accepts both customer and interbank payment messages (of the types MT 100, MT 103 and MT 202).

There is no obligation for participants to use LIPS-Gross, other than for payments in connection with monetary policy operations, for payments in euro necessary for the settlement of the euro leg of foreign exchange operations involving the ESCB, and for the settlement of cross-border large-value netting systems handling euro transfers.

Although the system is intended for high-value payments, there is no lower limit for a payment.

#### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

LIPS-Gross is a fully automated system in which payments are exchanged in the form of telecommunications messages. LIPS-Gross uses the SWIFT FIN network, entailing a limited technical impact on participants, since most of these were already equipped with SWIFT computer-based terminals.

Participants in LIPS-Gross are equipped with workstations enabling them to monitor, in real time, their payment flows, the balance of their settlement account and their queued payments.

Like the other TARGET components, LIPS-Gross operates between 7 a.m. and 6 p.m. CET but customer payments are accepted until 5 p.m. CET only.

#### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

The domestic leg of LIPS-Gross transactions is based on the Y-shaped architecture of the SWIFT network. This means that any payment sent by a participant is intercepted at the level of the technical operator, i.e. SWIFT, which sends a settlement request to the national central bank. Once the settlement procedure has been run through, a settlement response is issued by the national central bank.

All cross-border transactions are forwarded to the central bank of the receiving party via the Interlinking component.

#### 3.2.6 SETTLEMENT PROCEDURES

All payments are settled individually by debiting the account of the sender and crediting the account of the receiver on a real-time basis.

However, before settling a payment, the system checks that the sending bank has enough credit, either in the form of a credit balance on its account or in the form of an overdraft facility backed by eligible collateral. If a payment

cannot be settled because of a lack of funds or collateral, the payment is automatically stored in a queue and reconsidered for settlement each time a credit is posted to the account. Payments remaining in the queue at the end of the day are rejected.

#### 3.2.7 CREDIT AND LIQUIDITY RISK

Payments are settled only if the sending participant has sufficient credit on its settlement account. In the event that a participant does not have sufficient funds to allow settlement, it may decide to keep the payment on hold (until incoming payments are credited, for instance) or resort to intraday credit. Intraday credit is fully collateralised through a pool of securities – a procedure which gives the banks more flexibility in managing their securities portfolios.

#### 3.2.8 PRICING

The pricing of LIPS-Gross is based on a full cost recovery principle.

Investment costs are covered by an entrance fee to be paid by every participant in the system.

Operational costs are covered by transaction fees and an annual fee which has a tiered structure depending on individual participants' transaction volume.

The pricing of cross-border transactions complies with the fee structure agreed upon at the Eurosystem level, i.e. €1.75 for each of the first 100 transactions in a month, €1.00 for each of the next 900 transactions and €0.80 for each subsequent transaction.

Domestic payments are charged at €0.80 per transaction, regardless of the number of payments sent.

#### 3.2.9 STATISTICAL DATA

In 2006 LIPS-Gross participants exchanged a total of 197,744 payments (109,567 in 2005), with a total value of €3.39 billion (€2.74 billion in 2005). By comparison with 2005 the volume increased by 80%, and the value exchanged

rose by 24%. The average value per payment was €17 million. In addition, 473,199 payments were sent to other countries of the European Union (407,375 in 2005), with a total value of €4,489 billion (€3,902 billion in 2005). In return, participants received 404,176 cross-border payments (382,732 in 2005), with a total value of €4,489 billion (€3,907 billion in 2005). The average value per payment sent was €9.5 million (a decrease of 1%), and the average value per payment received was €11.1 million (an increase of 8.8%).

### 3.2.10 EVOLUTION OF LIPS-GROSS

The Banque centrale du Luxembourg will migrate to the common payment platform TARGET2, the successor of the present TARGET system, in the first migration window in November 2007.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 LIPS-NET

In October 1994 a fully electronic interbank clearing system, LIPS-Net, became operational. The network, to which the participating banks, the technical operator CETREL and the Banque centrale du Luxembourg (as the settlement agent) are connected, is used for the netting and settlement of retail payment transfers between banks.

Initially, only three banks were involved in the design and implementation of the system.

The number of participating banks has, however, gradually increased over the past few years, reaching 13 (including the Banque centrale du Luxembourg) by December 2005.

#### 3.3.1.1 Operating rules

The electronic clearing system is owned by an economic interest grouping, SYPAL Gie, which is a non-profit-making organisation, established under Luxembourg law, comprising the participating banks and the Banque centrale du Luxembourg.

The members of SYPAL Gie have entrusted the Banque centrale du Luxembourg with both the chairmanship of the Board and the management of the grouping.

#### 3.3.1.2 Participation in the system

Access to the system is granted to credit institutions falling under the scope of the banking supervisory authority, and to the Post Office.

All participants must be members of SYPAL Gie and RTGS-L Gie (i.e. they must have an account in the RTGS system), comply with the existing rules and hold an account with the national central bank. The only exception with regard to settlement is the Post Office, the net position of which is cleared through another settlement bank, since it is not a member of LIPS-Gross.

The Board of SYPAL Gie currently comprises five members, although it may have a maximum of seven members. In order to be eligible for Board membership, participants other than the Banque centrale du Luxembourg must individually generate at least 15% of payment flows.

#### 3.3.1.3 Types of transaction handled

The types of transaction handled in the electronic clearing system are: credit transfers, cheques and the clearing of credit card balances between issuers and acquirers.

For credit transfers, a distinction is made between standard credit transfers and standing orders. All in all, credit transfers account for around 90% of the transactions processed.

Although the use of cheques has been steadily declining over the past few years, cheque truncation was introduced in the electronic clearing system in the course of 1998, thereby reducing the processing costs for banks.

Cheque truncation, however, applies only to cheques with a value of less than €12,500. Cheques with a value exceeding this limit are

still exchanged physically between participating banks.

The clearing of a credit card balance is an interbank settlement transaction. The volume of such transactions is limited (1% of the system's volume), but represents a considerable share of the values exchanged in LIPS-Net (11%).

Although it is possible to limit the value of payments processed by the system, no restrictions are imposed on the participants at the current time.

#### 3.3.1.4 Operation of the transfer system

The payments cleared in the system are grouped into batches at the sending bank and netted following preliminary checks at the level of the technical operator. A batch can include up to 1,000 payments.

The network is star-shaped, which means that each payment batch sent through the system is first received and checked by the technical operator and then netted. After the settlement of the net positions, the payment batches are forwarded to the receiving bank, which can process them without delay.

The settlement process takes place five times a day, i.e. at 7.30 a.m., 10 a.m., 12 noon, 2 p.m. and 4 p.m. CET. The multilateral net positions of the system's participants are cleared in the LIPS-Gross system. In each clearing cycle, the multilateral net position of each participant is checked against its available credit line in the RTGS system. Provided that the proposed settlement does not cause any of the participants' credit limits to be exceeded, all the multilateral positions of participants are settled. If one or more participants' limits are exceeded as a result of the settlement, an algorithm selects the payments which caused the limits to be exceeded and places them in a queue until the next clearing cycle. This procedure ensures that settlement always takes place in due time and that no uncollateralised intraday credit is granted to the banks.

During this netting process, the reserved funds are automatically blocked in the current accounts of LIPS-Gross participants which have a net debit position in LIPS-Net, in order to enable, once the netting is complete, the immediate settlement of the net positions.

The settlement of LIPS-Net positions is a transaction with a higher priority than any "normal" payment initiated by a LIPS-Gross participant.

Shortly after settlement, the technical operator releases all the payment batches included in the netting process and dispatches them to the receiving banks.

#### 3.3.1.5 Transaction processing environment

The electronic clearing system uses a private network. It is a file-oriented system which functions on the basis of the "store and forward" principle.

The banks operate their access points on UNIX platforms. Backup procedures have been designed in order to enable data exchange via magnetic media in the event of a failure of the telecommunications networks. All banks have high-availability systems to cover the risk of a variety of hardware failures. There is a test environment on a standby platform to test new software releases and to validate the information flows of new participants. A fully fledged business continuity plan has been devised to ensure the settlement of at least one netting cycle in the event of a major failure on the part of the technical operator.

#### 3.3.1.6 Credit and liquidity risk

The electronic clearing system is based on multilateral netting. The limit on participants' authorised net debit positions depends on the amount of intraday credit granted to the individual participants in the RTGS system. As mentioned above, since the launch of EMU, credit risk has been managed through the intraday credit facilities offered by the Banque centrale du Luxembourg to the credit institutions participating in LIPS-Gross.



### 3.3.1.7 Pricing

The basic principle underlying pricing is full cost recovery. Pricing comprises a one-off entrance fee, an annual fee and a transaction fee.

### 3.3.1.8 Evolution of LIPS-Net

Within the context of the realisation of a Single Euro Payments Area (SEPA), LIPS-Net ceased operations on 9 October 2006. Luxembourg credit transfers and standing orders are now processed on STEP2, the pan-European platform operated by the Euro Banking Association (EBA). Since 1 July 2006 cheques have been exchanged and cleared between banks on a bilateral basis.

### 3.3.2 CARD-BASED SCHEMES

A multi-purpose prepaid card scheme, called Minicash, was launched in February 1999 by CETREL in cooperation with nine issuing institutions, including the Post Office.

Minicash operates through a prepaid rechargeable chip embedded in the existing debit cards. The technology used by Minicash is based on the German Geldkarte system. Like most prepaid card schemes, it is intended as a substitute for cash in small-value transactions.

The electronic purse can be loaded up to an amount of €125. The loading of the card takes place after the verification of the PIN code at special-purpose loading terminals (operated either by the banks or by CETREL) or at ATMs (operated by the banks only). In order to be loaded, a card needs to be recognised by the central security system at CETREL, which also checks the availability of sufficient funds on the card-linked account. In the loading operation, the current account of the cardholder is debited and a dedicated float account held by the issuer is credited via the centralised float account managed by CETREL.

Transactions at the point of sale are offline.

Electronic value is simply transferred from the card to the retailer's terminal. Periodically,

depending on the number of transactions stored on the retailer's chip card and no later than two weeks after the last download, the retailer sends the information stored in the purchase terminal to the central clearing unit at CETREL via the telecommunications network.

When centrally processing the transactions received, CETREL credits the retailer's account and debits the float account of the card issuer.

CETREL manages a complete set of mirror accounts, which enables it to trace any transaction carried out in the system.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

The Luxembourg Stock Exchange's trading hours are from 10 a.m. to 4 p.m. CET.

Trading, which is fully electronic and decentralised, is generated in the Automated Trading System (SAM) developed by the Luxembourg Stock Exchange. Members can access two market segments: the MultiFixing Market (MFX) and the block trade reporting system. On the MFX, securities are distributed among a number of fixing groups called in sequence according to a fixed time schedule.

Market participants trade directly via their local dedicated IT workstations.

In 2006 the total turnover of all listed securities amounted to €1.5 billion, of which 86% was accounted for by bonds, 12.5% by domestic and foreign shares, and 1% by units in undertakings for collective investment (UCIs).

#### *Bonds*

Bonds currently listed on the Luxembourg Stock Exchange are more or less evenly issued in EU and non-EU currencies.

### Shares

The total number of shares listed on the Luxembourg Stock Exchange in 2006 was 292, of which 41 were domestic and 251 foreign.

### Undertakings for collective investment

In 2006 a total of 6,887 UCIs were listed on the Luxembourg Stock Exchange, of which 97% are domestic.

## 4.2 CLEARING

In the absence of a dedicated central counterparty for securities clearing in Luxembourg, settlement in this context is covered in Section 4.3.

## 4.3 SETTLEMENT

### 4.3.1 INTRODUCTION: THE CORPORATE STRUCTURE OF CLEARSTREAM BANKING LUXEMBOURG SA

Cedel was founded on 28 September 1970 in order to provide for the clearing, settlement, custody and management of securities and precious metals.

On 1 January 1995, with the intention of increasing the company's effectiveness, Cedel became Cedel Bank (later Cedelbank) in order to take advantage of capital adequacy regulations. At the same time, Cedel International was established as the parent company of the Cedel Group.

In May 1999 Cedel International and Deutsche Börse Clearing AG decided to merge. Both entities then formed Clearstream International, of which 50% is owned by Cedel International Holding (itself owned by international financial institutions) and 50% by Deutsche Börse AG.

Clearstream International is the parent company of Clearstream Banking Luxembourg SA, Clearstream Banking Frankfurt AG (CBF) and Clearstream Services (located in Luxembourg).

Clearstream International officially started operations in January 2000 and is operating under Luxembourg law. CBF has taken over the business of the former Deutsche Börse Clearing and continues to operate under German law as a bank and as the German CSD, while CBL has taken over from Cedelbank and operates as the Luxembourg CSD.

Clearstream International has offices in Luxembourg, Frankfurt, London, New York, Hong Kong and Dubai.

### 4.3.2 THE CURRENT SITUATION

CBL is a duly licensed credit institution incorporated under Luxembourg law and is thus authorised to carry out the entire range of banking activities. However, CBL's by-laws stipulate that its core business consists of acting as a depository and providing clearing and settlement services in respect of the securities which have been or are to be deposited with CBL. Consequently, CBL's other banking activities are limited to facilitating its settlement and clearing services.

Following the transposition of the EC Settlement Finality Directive into Luxembourg law, the European Commission was notified of the securities settlement system status of CBL, which is thus included in the scope of the Directive.

### 4.3.3 PARTICIPANTS IN THE SYSTEM

Membership is open essentially to banks, broker-dealers, investment banks, central banks and CSDs. New members must meet certain criteria when applying for membership, and their credit standings are assessed on an ongoing basis. The criteria against which membership is assessed include the institution's net worth, its legal structure, its management reputation and the underlying country risk.

Today, CBL maintains customer relations with major financial institutions from over 70 countries.

#### 4.3.4 TYPES OF TRANSACTION HANDLED

More than 250,000 securities are currently accepted by CBL for clearance and settlement. They include fixed income bonds such as eurobonds, foreign bonds, domestic bonds and convertibles, and money market instruments (including short and medium-term notes, commercial paper and certificates of deposit), as well as equities, depository receipts, units in investment funds, warrants and precious metals.

CBL operates a multi-currency system, which currently covers 37 currencies. Customers have discretion over the choice of currency for the settlement of obligations.

#### 4.3.5 TRANSACTION PROCESSING ENVIRONMENT

The communication media available to customers for the sending of settlement instructions include the SWIFT network, the CBL communication system Cedcom, and telex.

Once an instruction is received by CBL, it is checked automatically against validation criteria such as the International Securities Identification Number (ISIN) in order to ensure that the instruction has been input correctly. Once validated, the instruction must be matched with the instruction from the counterparty. It will then be deemed a valid settlement order. If the instruction is not validated, the customer is informed immediately in order that the instruction can be rectified and a new instruction sent before processing deadlines.

Reports of settled and unsettled trades are available on an hourly basis throughout the day. Full reporting, including information on cash and securities balances and total holdings, is provided to customers after both overnight processing and daytime continuous settlement processing.

#### 4.3.6 SETTLEMENT PROCEDURES

CBL has developed and implemented a book-entry IT system through which cash and securities are exchanged simultaneously. This

DvP mechanism is intended to eliminate the principal risk. Where customers cannot deliver securities or cash at the designated time, CBL offers a comprehensive securities lending programme and provides cash lending facilities. These support mechanisms are closely monitored via dedicated cash and collateral management services.

#### *Overnight and daytime processing*

Transactions in CBL are processed during CBL overnight processing and during daytime continuous settlement processing. All valid instructions received after 8.30 p.m. CET are settled overnight for value the following day.

Continuous settlement occurs on a same-day basis and takes place during the day for all valid instructions received by 5.30 p.m. CET.

Transactions which fail during overnight processing can be reconsidered for settlement in the 16 subsequent continuous settlement processing cycles.

#### *Bridge settlements*

The original Bridge Agreement between CBL and Euroclear was reached in 1993. Trades with counterparties in Euroclear are settled overnight via the electronic Bridge on a DvP or FOP basis. The Bridge allows transactions to be settled between customers of CBL and Euroclear by crediting or debiting the accounts the clearing and settlement systems hold with each other. On 29 November 2000 Clearstream International and Euroclear signed an agreement to supplement the existing overnight Bridge with a new daytime transaction processing feature linking the two systems. A manual version of this daytime Bridge for multiple intraday exchanges of securities and cash deliveries began operations in 2001. The main benefits of this enhancement were increased efficiency, greater liquidity of customer transactions and the possibility of distributing new issues on a same-day basis.

In 2004 Clearstream and Euroclear introduced a further significant enhancement by

implementing the automated Daytime Bridge. The new Bridge improves cross-border settlement efficiency, in particular by extending instruction deadlines and allowing same-day (T+0) Bridge transactions, thereby increasing interoperability between the two ICSDs.

#### *Internal transactions*

Securities held in the CBL system and traded between CBL counterparties are settled in accordance with the counterparties' instructions on a DvP or FOP basis through the simultaneous book-entry transfer of securities and cash between the accounts of the buyer and the seller.

#### *External transactions*

Trades with counterparties on other domestic markets are settled through one of CBL's depositories (either a national CSD or a bank, depending on the market).

#### *The Creation project*

The Creation settlement system is a central application enabling CBL to offer customers a rapid daytime settlement service. In addition to features such as eligibility checking, settlement and technical netting, provision checking and transaction booking, the Creation system includes functions such as automatic reimbursement of securities lending, automatic substitution of collateral, automatic collateral top-up and return of specific collateral pledged, and settlement of securities financing.

On the basis of the principle of continuous intraday DvP settlement, the Creation IT platform improves liquidity for customers by introducing technical netting facilities.

#### **4.3.7 RISK MANAGEMENT**

##### *Default of a counterparty*

From a legal point of view, the default of a participant in CBL does not have an impact on the property rights of its counterparties as regards securities transactions settled prior to the time of the court order. With regard to securities transferred to a counterparty under a

pledge agreement, such collateral may, from the moment the debtor is in default, be used without written notice to meet any of its obligations. In the case of a repo agreement, the default of a participant will not adversely affect the property rights of the owner of the securities.

Since settlement of transactions can only occur if the necessary cash and securities provisions are available, customers of CBL are not exposed to the risk of default by another customer.

#### *Securities and cash lending facilities*

CBL manages different types of securities lending programme. The mechanisms are optional and are intended to avoid possible settlement failures on the part of customers. In all of these programmes, apart from the collateralised Automated Securities Lending plus (ASL plus) programme, CBL acts not as principal, but merely as an intermediary between the lenders and the borrowers. In ASL plus, which was introduced in October 2005, CBL acts as principal.

In addition, CBL also offers different types of credit facility against collateral.

#### *Responsibility of CBL*

In the absence of negligence or wilful misconduct on its part, CBL is not liable to customers for any loss, claim, liability, expense or damage arising from any action taken or not taken by CBL. In addition, CBL has taken out insurance policies to cover crime and depository indemnity up to a value of USD 75 million and the risks of physical loss or damage up to a value of USD 75 million.

#### **4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE BANQUE CENTRALE DU LUXEMBOURG**

Following positive assessments of its systems by the Eurosystem in 1998 and 2000, CBL was designated by the Banque centrale du Luxembourg as the Luxembourg CSD for handling securities used for collateralising

Eurosystem credit operations. Re-assessments of CBL systems were carried out in 2001, 2002 and 2004.

At the domestic level, Luxembourg banks use their accounts in CBL to deliver securities to the account of the Banque centrale du Luxembourg for the purpose of holding adequate collateral for monetary policy and intraday credit operations.

At the cross-border level, the use of the CCBM remains popular with Luxembourg banks: 52% of all cross-border collateral held by Luxembourg banks was mobilised via the CCBM as at June 2005.

The use of eligible links established by CBL (i.e. those assessed and accepted by the Eurosystem) accounted for the remaining 48% of collateral held on a cross-border basis in December 2005. The links established by CBL are the most widely used in the Eurosystem.

The ratio of domestic eligible collateral to cross-border eligible collateral was one to one and a half in December 2005. In addition to its ongoing involvement in the aforementioned Eurosystem assessment procedure, the Banque centrale du Luxembourg assumes the oversight function for CBL. The policy and procedures have been published on the BCL's website (under "Publications/Circulaires BCL").

Finally, the Banque centrale du Luxembourg and CBL have developed a new settlement model similar to that which is currently in use in Germany. This model, called the "Night-time Link", enables CBL to grant credit to its Luxembourg customers during night-time processing on the basis of collateral held by its Luxembourg customers at the Banque centrale du Luxembourg. This feature has been available since January 2003.



# NETHERLANDS

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## LIST OF ABBREVIATIONS

AEX	Amsterdam Exchanges N.V.
AFM	Authority for Financial Markets – <i>Autoriteit Financiële Markten</i>
BXS	Brussels Exchanges
DNB	De Nederlandsche Bank
LIFFE	London International Financial Futures and Options Exchange
Necigef	Dutch CSD – <i>Nederlands Centraal Instituut voor Giraal Effectenbedrijf</i> (now called Euroclear Nederland)
NIEC	Dutch Interprofessional Securities Centre – <i>Nederlands Interprofessioneel Effectencentrum</i>
NLKKAS	Nederlandse Liquidatiekassen N.V.
NSC	<i>Nouveau Système de Cotation</i> , a French trading system
NVB	Netherlands Bankers' Association – <i>De Nederlandse Vereniging van Banken</i>
PVK	Pensions and Insurance Supervisory Authority – <i>Pensioen- en Verzekeringskamer</i>
STE	Securities Board of the Netherlands – <i>Stichting Toezicht Effectenverkeer</i>
TES	TOP End Station
TOPView	Secured internet link for real-time information and liquidity management
UPSS	Unisys Payment Solutions and Services
Wtb	Act on the supervision of collective investment schemes – <i>Wet toezicht beleggingsinstellingen</i>
Wte	Act on the supervision of securities trade – <i>Wet toezicht effectenverkeer</i>
Wtk	Act on the supervision of credit institutions – <i>Wet toezicht kredietinstellingen</i>

## INTRODUCTION

As with other payment systems around the world, technological innovation and evolving methods of payment have influenced the Dutch payment system and led to a substantial decrease in the use of paper-based instruments. For point-of-sale payments the use of debit cards is still rising. For remote payments the key characteristics remain largely the same. The Netherlands relies on credit transfers and direct debits. The majority of Dutch households and businesses hold more than one payment account. In December 2005 over 16 million inhabitants held over 23 million accounts.

In 2005 commercial banks processed a total of around 3.8 billion cashless retail payments. The Dutch payment services market is fairly concentrated, as is the banking market as a whole. The bulk of private customer accounts are held with just a few banks. In addition to the deposit-taking institutions offering a wide range of payment services, there are a few international credit card companies and retail chains offering credit card services.

Almost all interbank retail payments are processed centrally at the automated clearing house Interpay (which has changed its name to Equens following a recent merger with Transaktionsinstitut), in which the majority of the banks participate.

Large-value payments are processed via TOP, the real-time gross settlement (RTGS) system, which is owned and operated by De Nederlandsche Bank (DNB). Although the TOP system is, in principle, intended to handle large-value interbank payments, there are in fact no upper or lower value limits for payments. This also applies to cross-border payments via TARGET, of which the TOP system is a part.

The securities clearing and settlement systems in the Netherlands have been subject to cross-border mergers. In 2000 the Amsterdam Stock Exchange merged with ParisBourse and the Brussels Stock Exchange. Subsequently, the

clearing and settlement activities were sold to form cross-border integrated systems with the Belgian, French, Portuguese and UK clearing and settlement systems. As such, the capital market in the Euronext countries, including the Netherlands, is characterised by a horizontal structure.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### I.1.1 INSTITUTIONS RESPONSIBLE FOR REGULATING, SUPERVISING AND OVERSEEING THE FINANCIAL INFRASTRUCTURE

The institutions permitted to conduct banking activities fall under the Act on the supervision of credit institutions (Wtk), while investment institutions are covered by the Act on the supervision of collective investment schemes (Wtb). The Second Banking Co-ordination Directive, which sets down the principle of mutual recognition of (EU) banking licences, and the Investment Services Directive, which opens the European market for investment services, have been implemented in the Netherlands.

Banking supervision was traditionally a responsibility of De Nederlandsche Bank, while the Pensions and Insurance Supervisory Authority (PVK) carried out supervision of pension funds and insurance companies. The Securities Board of the Netherlands (STE), which became the Authority for Financial Markets (AFM) with effect from March 2002, supervised investment institutions. However, in view of international developments such as consolidation in the financial sector and diversification, the organisation of supervision was revised. The phase in which the supervisory framework evolved from the traditional sectoral model to a functional model was completed on 18 September 2002. The AFM became responsible for supervision of the market conduct of all supervised institutions, as well as supervision of the provision of information to the public, while DNB and the PVK exercised prudential supervision of all financial institutions. These two institutions subsequently merged in November 2004 and now operate under the name DNB.

The 1998 Bank Act contains, in accordance with the Statute of the ESCB, a provision stating that the national central bank, i.e. De

Nederlandsche Bank, must promote the smooth operation of the payment system. A law on the supervision of settlement systems is currently being drafted. This “Infrastructure Act” will create a supervisory framework on the basis of which standards developed in the G10 context can be imposed on payment and securities settlement systems with a view to fostering and maintaining financial stability and confidence in payment instruments.

#### I.1.2 THE LEGAL FRAMEWORK

In the Netherlands, the legal framework underlying payments and securities consists of several public and private laws. An overview of the main provisions governing payments and securities can be found in the sub-sections below.

##### *Legal aspects of payment media and the provision of payment services to the public*

Pursuant to the 1998 Bank Act, banknotes are legal tender up to an unlimited amount, while under the 1987 Coinage Act coins are legal tender up to a limited amount. The 1992 Dutch Civil Code includes a stipulation to the effect that non-cash payments are legally equivalent to cash payments.

The External Financial Relations Act contains provisions on external payments, such as the obligation to report certain transactions for balance of payments purposes.

The Act on cross-border payment services was designed to implement Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 and contains provisions on the transparency and quality of cross-border payments. With Regulation (EC) No 2560/2001, the transparency requirements were extended to cover the domestic market, and the same charges must apply to both domestic and cross-border euro electronic payment transactions and credit transfers.

With a view to preventing money laundering, the Identification (Financial Services) Act obliges financial institutions to ascertain the

identity of customers wishing to effect certain payments and securities transactions using an official means of identification. In line with this, the Disclosure of Unusual Transactions Act provides that staff of, for instance, banks must report unusual transactions to a central disclosures office; in the context of the introduction of the euro banknotes and coins, the ceiling amounts were adjusted downwards. In addition, the Exchange Offices Act requires that exchange offices be registered and their directors trustworthy.

Since July 2002 institutions must provide a financial information leaflet (*financiële bijsluiter*) when selling complex financial products. Its purpose is to increase transparency for the public and to facilitate comparison between financial products.

#### *Legal aspects of securities trading*

The securities sector has traditionally been characterised by a high degree of self-regulation. Legislation in the field of securities is aimed at protecting investors and ensuring the adequate operation of the securities market. Three laws are particularly important in this respect.

The Securities Giro Transfer Act of 1977 provides for the establishment of an institute responsible for the safekeeping, administration and general control of the book-entry securities transfer system. The institute for the book-entry transfer of securities (*Euroclear Nederland*, formerly known as *Necigef*) sets up collective deposits in which the owners of securities are entitled to their proportionate share. *Euroclear Nederland* determines which securities may enter its book-entry transfer system. Almost all securities listed on the Euronext Amsterdam stock market have been declared book-entry securities and are kept in safe custody by *Euroclear Nederland*. The Act has been amended in order to include registered rights (dematerialised securities) in the book-entry system.

The Act on the supervision of securities trade (*Wte*) took effect on 15 June 1992. It contains

regulations for the supervision of securities business both on and off the exchanges, aimed at promoting the proper functioning of the securities markets and protecting the position of the investor. The Act contains provisions on selling securities, acting as an intermediary or portfolio manager and organising a stock exchange. Under the *Wte*, most of the Minister for Finance's responsibilities and powers were delegated to the STE (which became the AFM in 2002; see Section 1.1.1). The 1992 *Wte* was an enabling act and contained only framework regulations. Full provisions were laid down in the Decree on the supervision of securities trade and in the Further Regulation on the supervision of securities trade, drafted by the STE itself. In 1995 a new version of the *Wte* came into effect which was designed to bring Dutch legislation into line with the Investment Services Directive and the Capital Adequacy Directive.

On 1 January 1997 the responsibility for supervising the institutions admitted to the stock exchange, at that time *Amsterdam Exchanges N.V.* (*AEX*; now *Euronext N.V.*), was transferred from *AEX* itself to the STE. The 1995 *Wte* was amended to incorporate this change. As seen above, although the AFM previously had sectoral supervisory responsibilities, the focus is now on supervision of conduct. *DNB* is responsible for prudential supervision of the admitted institutions. In addition to its other functions, the AFM is responsible for the implementation of the Major Holdings in Listed Companies Disclosure Act 1996; the purpose of this Act is to increase market transparency.

#### *Legal aspects in respect of payments and securities*

On 1 January 1999 the Finality Act of 17 December 1998, designed to implement the Settlement Finality Directive (98/26/EC), came into force. The Act guarantees the final nature of the settlement of transactions in payment and settlement systems. To that end, the 1992 *Wtk* and the Bankruptcy Act were amended. Under the Finality Act, a court decision invoking the emergency regulation, an adjudication of

bankruptcy or suspension of payment in respect of certain parties does not – by contrast with the zero-hour clause – affect retroactive payments made by those parties in the designated systems. It ensures the secure functioning of the payment and securities settlement systems. On the basis of a recommendation by De Nederlandsche Bank, the Minister for Finance has designated a number of systems, including TOP (DNB's RTGS), the automated clearing house (ACH) for retail transactions Equens, and Euroclear Nederland.

In 1997, when the responsibility for the supervision of institutions admitted to the stock exchange was transferred from AEX to the STE, the Minister for Finance made the stock exchange's clearing and settlement systems subject to the oversight framework jointly established by the STE and De Nederlandsche Bank. The Infrastructure Act will codify the supervisory framework's standards and procedures for securities settlement systems. The scope of the future act is broader, as it also concerns payment systems.

## 1.2 THE ROLE OF DE NEDERLANDSCHE BANK

De Nederlandsche Bank N.V. is a private limited company, the shares of which are held by the Dutch government. The Bank Act, amended in 1998 to accommodate the Maastricht Treaty, ensures that De Nederlandsche Bank is independent of the Dutch government. The Bank Act and the Statute of the ESCB stipulate the tasks of De Nederlandsche Bank in respect of payments.

Pursuant to the 1998 Bank Act and the 1992 Wtk, De Nederlandsche Bank is responsible for the supervision of banks. Banks wishing to operate as such and to raise funds that can be withdrawn on demand must obtain a licence from De Nederlandsche Bank and be entered in its register. It is not necessary for institutions wishing to offer solely payment services to be licensed as banks. This exemption does not apply to institutions issuing electronic money;

these must be licensed as an electronic money institution.

The 1998 Bank Act states that De Nederlandsche Bank must ensure the smooth operation of payments. The Bank has a dual role with regard to payment systems: on the one hand, it provides payment services – for example to the local stock exchange – and, on the other hand, it is responsible for the oversight of payment and securities settlement systems. In order to be able to perform these tasks adequately, De Nederlandsche Bank holds regular consultations with banks and other parties involved in the functioning of these systems.

### 1.2.1 THE ROLE OF DE NEDERLANDSCHE BANK AS OVERSEER

De Nederlandsche Bank oversees the security, reliability, continuity and efficiency of securities clearing and settlement systems, payment systems and payment instruments. The main objective of oversight is to prevent systemic risk. This applies in particular to the oversight of securities settlement and payment systems. With regard to payment products, the aim is mainly to protect consumers.

Oversight of payment systems is the responsibility of De Nederlandsche Bank. It therefore entails both evaluating the setting up of the assessment frameworks, and testing the method of operation of Equens' system for low-value payments and of De Nederlandsche Bank's own large-value payment system, TOP. Banks' in-house payment systems are subject to the supervision exercised pursuant to the Wtk. The internal auditing department plays a major role in the daily assessment of TOP. De Nederlandsche Bank's external auditor also assesses the system in terms of existing standards.

For the sake of clarity and to make a distinction between oversight and supervision pursuant to the Wtk, De Nederlandsche Bank has a separate unit responsible for oversight. This unit examines and analyses the risks inherent in (new) securities clearing and settlement

systems, payment systems and payment instruments and makes recommendations on how they should be managed.

For the securities clearing and settlement systems, DNB and the AFM are the competent authorities. The merger of ParisBourse, AEX, Brussels Exchanges (BXS) and, later, the Portuguese exchanges has had an impact on the practical aspects of oversight in an international context.

In order to facilitate international cooperation in the oversight of Euronext's clearing activities, a memorandum of understanding (MoU) on clearing was concluded in early February 2001 between the Dutch, French and Belgian supervisors and overseers involved. The MoU was extended to include the Portuguese authorities in 2002. It is based on principles such as cooperation on equal terms and mutual acknowledgment of national jurisdictions. With a view to coordinated supervision and oversight, a Coordination Committee on Clearing was set up, at which all banking supervisors, securities regulators and overseers are represented. This committee, in which De Nederlandsche Bank participates, discusses planned system changes and coordinates oversight measures. The merger between Clearnet SA and the London Clearing House, as announced in 2003, resulted in an MoU between the committee and the competent British authorities.

As Euronext stock exchange transactions are settled via Euroclear Nederland, a daughter company of Euroclear SA, cooperation in respect of settlement is also required. In early 2002 cooperation between the Dutch, French and Belgian supervisors and overseers was formalised in an MoU. In this MoU on settlement, the Belgian supervisors and overseers were recognised as the lead supervisory authorities. A settlement committee was established, with representatives of the Belgian, French and Dutch authorities charged with the supervision and oversight of Euronext's settlement activities. The settlement committee has an advisory function; the Belgian supervisors

will implement its recommendations to the best of their ability. Since the merger between Euroclear SA and CREST the British authorities have also been part of the settlement committee.

Table 1 gives an overview of the systems subject to oversight and the institutions responsible for such oversight.

**Table 1 Payment and securities clearing and settlement systems and overseers**

	Competent authority
<b>Payment systems</b>	
– Equens	DNB
– Unisys Payment Solutions and Services (UPSS)	DNB
– TOP/TARGET	DNB
<b>Securities clearing and settlement systems</b>	
– LCH, Clearnet SA	AFM/DNB
– NIEC	AFM/DNB
– Euroclear Nederland	AFM/DNB
– NLKKAS	AFM/DNB

### 1.2.2 OPERATIONAL ROLE

De Nederlandsche Bank's operational contribution towards the smooth and efficient settlement of economic transactions takes the form of services relating to cash payments, non-cash payments and securities transactions.

#### *Services in respect of cash payments*

The 1998 Bank Act states that one of De Nederlandsche Bank's tasks is "to provide for the circulation of money as far as this consists of banknotes". This provision is in line with the Statute of the ESCB, which states that the Governing Council of the ECB may authorise the ECB and the NCBs to issue banknotes within EMU. De Nederlandsche Bank performs the following tasks in respect of the circulation of money:

- developing and ensuring the production of euro banknotes within the framework of the ESCB;
- distributing banknotes; and



- verifying and inspecting the banknotes in circulation.

Banknotes are distributed through De Nederlandsche Bank's four agencies. Every day, the banks withdraw large quantities of money to provide their customers with ready cash. Banknotes are distributed via ATMs and banks' offices (including post offices). Excess banknotes flow back to the banks, which usually process them in cash centres. The banks check the banknotes for counterfeits and inspect the quality of the notes, in accordance with the ECB Banknote Recycling Framework. The unfit notes and a share of the fit notes are transferred to De Nederlandsche Bank, while the other fit notes are put back into circulation.

In 2003 De Nederlandsche Bank announced a reorganisation of the banknote distribution structure, including the closing down of the three agencies outside Amsterdam (now scheduled to take place on 1 July 2007). This reorganisation was also intended to introduce large-scale recycling of banknotes by market parties. In January 2005 De Nederlandsche Bank and the largest commercial banks concluded a cash distribution agreement, in which the banks also undertook to meet the guidelines of the ECB Banknote Recycling Framework. As intended, the restructuring has led to a decline in the number of banknotes returning to De Nederlandsche Bank.

While De Nederlandsche Bank is responsible for banknote issuance, the Ministry of Finance is responsible for minting and issuing coins. The Coinage Act stipulates how this is to be carried out and DNB gives advice on the number of coins to be minted annually. By virtue of a royal decree, De Nederlandsche Bank is responsible for the distribution of coins. The organisation of the distribution of coins has been outsourced by DNB.

#### *Services in respect of non-cash payments*

De Nederlandsche Bank has been involved in operational terms in the processing of non-cash

interbank payments. Its system is used to settle the payments of institutions that have an account at De Nederlandsche Bank.

Most domestic banks are linked to De Nederlandsche Bank's gross settlement system, TOP. In 2005 these banks effected 17,500 transactions per working day on average, with an average daily value of €95 billion. These are large interbank payments arising from domestic money market and securities transactions and cross-border interbank payments carried out via TARGET. Cross-border payments accounted for 17.7% of the total number of transactions and 60.2% of the total value of transactions processed in TOP.

The banks also settle their retail payments via TOP. These are net amounts arising from the daily clearing carried out by Equens, the Dutch net clearing and settlement system for low-value payments. In 2005 an average of 12.7 million transactions were conducted per working day, with a total daily value of €7.6 billion. Section 3 examines the operational side of payment systems in greater detail.

#### *Services in respect of securities transactions*

De Nederlandsche Bank has been involved in operational terms in the settlement of securities transactions, both over-the-counter (OTC) and stock exchange transactions. Together with Euroclear Nederland, De Nederlandsche Bank provides delivery-versus-payment (DvP) services for banks; in 2005, these accounted for about 28% of all transactions in TOP. De Nederlandsche Bank is the settlement bank for LCH.Clearnet SA, for its Dutch clearing members (for example stock exchange transactions), and for the fulfilment of the margin and clearing fund requirements of those clearing members.

#### **1.2.3 COOPERATION WITH OTHER INSTITUTIONS**

At the national level, De Nederlandsche Bank and commercial banks have set up a consultative structure in order to exchange views about policy objectives formulated by national and international authorities.

At the level of the boards of management, the Steering Group on the Implications of EMU was set up in 1994 to discuss the consequences of the euro for the Dutch banking system. The Steering Group's task was later extended. For example, it provided guidance on the preparation of banks' automated systems for the Millennium date change (Y2K) and, in early 2000, it was transformed into a general consultative forum, the Payments and Securities Settlements Policy Forum (Beleidsoverleg Betalingsverkeer en Effectenafwikkeling), comprising De Nederlandsche Bank and the major banks. De Nederlandsche Bank chairs the forum, while the Netherlands Bankers' Association (NVB) acts as its secretariat.

Under this structure, the Working Group on Payments and the Working Group on Securities act as a platform for consultations between De Nederlandsche Bank and the Dutch banking and securities sectors. The aim is to achieve a structured exchange of information on major issues relating to payments and securities transactions. The Working Groups report to the Policy Forum and are made up of representatives of De Nederlandsche Bank, the commercial banks, the stock exchange (ad hoc), Equens and Currence (see Section 1.3.1). De Nederlandsche Bank holds the chair, while the NVB acts as the secretariat.

In 2001 the Minister for Finance asked the President of De Nederlandsche Bank to investigate the tariff structures and infrastructure in retail non-cash payments for individual and business users. A working group, the Wellink Working Group, was established, chaired by the President of De Nederlandsche Bank and including the chairpersons of the boards of seven banks, the President of Equens and the chairperson and director of the NVB. In 2002 the working group set out its findings in a report which was presented to the Minister for Finance. The report concluded that the payments market in the Netherlands shows great dynamism and is characterised by an efficient infrastructure with relatively large-scale use of electronic payments. Further, the report stated that

transaction-based tariffs are rarely imposed on private customers, while for the business segment an elaborate and diversified system of transaction charges is in place. On the basis of the findings of the working group, De Nederlandsche Bank adopted several recommendations to further improve the efficiency of the Dutch payment system, notably with regard to the role of Equens (see Section 1.3.1), the tariff structure and the protection of the public interest. With regard to the latter, DNB recommended, for example, the creation of a public consulting group on payment services (see Section 1.3.1).

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

An overview of the other important private and public players in the payments and securities sectors can be found in the sub-sections below.

#### 1.3.1 BODIES IN THE PAYMENT SECTOR

##### *Netherlands Bankers' Association*

The NVB's objective is to serve the general interests of banks. Nearly all banks registered in the Netherlands are members of this association. The interbank consultative body has a structure involving policy committees, committees and working groups that advise the association's Executive Committee.

The NVB's Policy Committee on Payments is the main consultative body in respect of payment systems. It is made up of those members of banks' boards of management who are in charge of payment systems. The Policy Committee is concerned with general policy frameworks and joint infrastructures, as well as retail and wholesale products. An Advisory Committee on Payments consisting of banks' senior payments managers supports the Policy Committee. This committee heads a number of working groups covering a variety of aspects relating to payment systems.

### **Equens**

Equens Nederland B.V. is the central clearing institute for retail payments set up by the banks with a view to promoting and maintaining efficient payment processing and reliable payment systems. Equens runs the network of POS terminals and the interbank authorisation network for cash dispenser transactions. The banks are both shareholders and customers.

Consultations are held within the Advisory Board, which is made up of the members of the NVB's Advisory Committee on Payments.

In the first half of 2004 Equens transferred its role as a contracting party for PIN and Chipknip to the banks. As a result of the transfer, merchants can enter into direct agreements with an acquiring bank of their choice. The change in the market model represents the implementation of a recommendation by De Nederlandsche Bank, which was based upon the findings of the Wellink Working Group in 2002 (see Section 1.2.3). The role of Equens as a contracting party in the electronic payment system created an ambiguity concerning the division of responsibilities between Equens (providing support services) and the banks (providing the actual product). Under the new model, the users of PIN and Chipknip services have one point of contact for the whole product.

Besides the above-mentioned change in the market model, Equens' member banks decided to separate the processing of collective payment products from management and regulation. In 2005 Equens transferred ownership and management of the most important interbank payment products (e.g. Chipknip, PIN, direct debit and credit transfer) to a new, separate organisation, Currence, which was set up by eight Dutch banks. Currence is responsible for regulating and managing national interbank payment products. It also sets the conditions for market parties wishing to operate in the chain for processing electronic retail payments in the Netherlands.

### **The National Forum on the Payment System**

The National Forum on the Payment System (Maatschappelijk Overleg Betalingsverkeer) consists of senior officials of the representative organisations of suppliers (banks) and users (consumers and businesses) of payment systems, as well as of governing and public bodies. The aim is to contribute to an efficient organisation of the Dutch payment system by exchanging information on practical bottlenecks and policy issues, and by striving for joint agreement on efficiency measures. The Forum does not have regulatory competencies. DNB chairs the Forum and performs secretariat functions.

In preparation for the uniform European payments area (Single Euro Payments Area, SEPA), the National Forum on the Payment System set up a special working group in 2006. This working group will have the task of ensuring that the transition to the SEPA in the Netherlands takes place as smoothly as possible.

### **1.3.2 BODIES IN THE SECURITIES SECTOR**

#### **Euronext N.V.**

On 22 September 2000 AEX, ParisBourse and BXS officially merged to form Euronext, establishing an integrated cross-border currency stock, derivatives and commodities market. Euronext is a holding company, with the three stock exchanges working as operating companies with their registered offices in Amsterdam. Being established as a Dutch company, Euronext has a two-tier board structure, as required under Dutch company law (structuurregime). Euronext Amsterdam N.V. is a wholly owned subsidiary of Euronext N.V. and is responsible for the organisation of the Dutch stock exchange, derivatives markets and commodities markets.

#### **Authority for the Financial Markets**

The predecessor to the Authority for the Financial Markets, the Securities Board of the Netherlands, was established in 1988 following a decision to entrust the supervision of securities

business, both on and off the stock exchange, to an independent organisation removed from both government and the securities sector itself. The STE's mandate was to ensure the proper functioning of the securities markets, to increase the transparency thereof and to protect the position of investors. On 1 February 1989 the STE was entrusted by the Minister for Finance with the supervision of the Dutch stock exchange, reporting to the Minister. As from 1 March 2002 the STE became the AFM as part of the reorganisation of supervision from a sectoral to a functional model. At the national level, the AFM is responsible for the supervision of conduct and works together with De Nederlandsche Bank, which is entrusted with prudential supervision and the prevention of systemic risk (oversight). At the international level, the AFM is the Dutch representative at the International Organization of Securities Commissions (IOSCO) and the Committee of European Securities Regulators (CESR).

#### *Dutch Securities Institute*

The Dutch Securities Institute was established to foster investor confidence in the securities sector by promoting the quality and integrity of the people working there, in particular traders, investment consultants, portfolio managers and investment analysts. To this end, it keeps four public registers, maintains a Code of Conduct and has set up a Complaints Committee.

#### *Euroclear Nederland (Necigef)*

Pursuant to the Securities Transfer Act, Necigef is responsible for book-entry transactions, as well as the custody, management and administration of securities on behalf of the participants. Necigef is a wholly owned subsidiary of the Euroclear group and is called Euroclear Nederland, the central securities depository.

The management of securities that do not fall within the scope of the Securities Giro Transfer Act, such as dematerialised bonds, may be carried out by the Dutch Interprofessional Securities Centre (NIEC).

#### *Association of Stockholders*

The Association of Stockholders (Vereniging van Effectenbezitters), founded in 1924, aims to promote the interests of stockholders and stockholding in general.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Banknotes and coins are the media used for cash payments. Both are legal tender, although the acceptance of coins by the public is compulsory only up to certain maximum amounts. Under the terms of the Coinage Act 1948, the Royal Mint, an institution supervised by the Ministry of Finance, produces coins. In accordance with Article 105a of the Treaty establishing the European Community, "the ECB has the exclusive right to authorise the issue of banknotes. The ECB and the national central banks may issue such notes". With reference to the Treaty, the Bank Act 1998 stipulates that De Nederlandsche Bank has the sole right to issue banknotes in the Netherlands.

At the end of 2005 the currency in circulation consisted of seven denominations of banknotes (€500, €200, €100, €50, €20, €10 and €5) and eight denominations of coins (€2, €1, €0.50, €0.20, €0.10, €0.05, €0.02 and €0.01). Since September 2004 the total amount paid in cash at retailers has been rounded off to the nearest multiple of 5 euro cent. Although the 1 and 2 euro cent coins remain legal tender, the rounding off has limited their use, leading to cost savings for retailers and greater convenience for consumers.

No exact figures are available for the number of cash payments. As a rough estimate, around 70% of the total volume of commercial transactions are effected in cash. The total volume of cash payments in 2002 was estimated at 7.1 billion, while the value of cash payments was placed at €66.3 billion. The larger the

transaction amount, the greater the tendency to pay by cashless means using deposit money.

## 2.2 NON-CASH PAYMENTS

Non-cash payments are made by transferring money deposited on a sight account, to which the account holder has direct access, by ordering the bank to withdraw or transfer the amount desired. Most households and businesses hold one or more accounts; around 23 million in total at the end of 2005, of which around 2.3 million were corporate accounts. Nearly all transactions in trade and industry are settled by cashless payments.

In 2005 an estimated 3.8 billion cashless payments were made for a total value of around €5,400 billion. In order to transfer deposit money, Dutch banks all offer similar payment instruments, such as credit transfers, direct debits and payment cards. Banks also offer payment services that are not related to sight accounts, such as traveller's cheques and money orders. The value and volume of these services is relatively limited.

### 2.2.1 CREDIT TRANSFERS

Practically all non-recurrent payments in trade and industry, as well as many household payments, are effected by means of ordinary credit transfers. This payment instrument, which has been standardised among banks, is also used by the central government and local authorities. When used by households, most of the credit transfer transactions are sent by data communication lines, either via a computer (internet banking) or by telephone (telephone banking), although a minor share of these transactions are still sent in paper form. Corporate customers and government institutions mostly use non-paper-based, electronically readable methods of payment. Bulk payment orders are usually delivered via data communication lines.

To streamline processing, Dutch banks offer two types of pre-prepared credit transfer: the standing order and the inpayment transfer

(acceptgiro). In order to pay recurrent bills, an account holder may choose to set up a standing order with the bank, on fixed dates, for fixed amounts and for a named account. This non-paper-based method of payment is frequently used for rent, subscriptions, insurance premiums, etc. On the fixed date, the bank effects the transfer, and no further action on the part of either the account holder or the payee is required.

When using an acceptgiro, the payee takes the initiative by sending a fully prepared transfer form together with the bill. In most cases the payer's account number, name and address are already printed on the form, as they are already known from previous payments. All the payer must do is sign the form and send it to its bank. This payment instrument is used for both regular and non-recurrent payments of either fixed or varying amounts, e.g. insurance premiums, subscriptions or bills for delivery to regular customers.

This pre-prepared transfer is a paper-based instrument which is processed by means of image processing technology to convert the relevant payment data into digital information. However, an increasing amount of acceptgiro information is reaching banks in digital form, as account holders use internet banking to deliver their payment orders. In this case, account holders convert the relevant data themselves. Banks are considering a digital version of this pre-prepared transfer by using websites to send bills and accept giros (Electronic Bill Presentment and Payment).

Giro payments are prominent in the Netherlands. In 2005 an estimated 32% of the total volume and over 95% of the total value of retail payments were made by credit transfer. Credit transfers are often used for business-to-business payments. The average amount of a payment by credit transfer is over €4,200.

### 2.2.2 DIRECT DEBITS

Direct debits constitute a separate category of instrument for collecting payments. The payer

signs a mandate authorising the payee to charge the former's account for goods delivered or services rendered. The transfer is initiated by the payee, which sends the payment order in electronic form (via data communication lines) to the bank with instructions to collect the money due by debiting the debtor's account in favour of its own account. The payer, however, remains in charge of its account, retaining the right to reimbursement by its bank for a certain period.

Direct debits are frequently used for collecting recurrent payments, such as payments to public utilities and telephone companies. The electronic form and the short processing route make the direct debit a very efficient means of collecting payments. Dutch banks offer several types of direct debit in order to meet the specific needs of different types of payment, such as the purchase of lottery tickets (without a reimbursement guarantee) and mail order services.

In 2005 27% of all retail payments were made by means of direct debits. The average amount paid using direct debits is around €220.

### 2.2.3 PAYMENT CARDS

Payment cards are plastic cards with several functions used to initiate payments at the point of sale or to make withdrawals from an account. For the issuer, the most important function is the authentication of the account holder by checking a signature or PIN.

Since around 1995 the use of debit cards with PIN authentication for daily retail payments has grown exponentially, partly replacing cash and completely replacing the use of guaranteed cheques. At the end of 2005 the total number of payment cards in issue was around 32 million, comprising an estimated 5 million credit cards and 27 million debit cards. Most debit cards are equipped with an electronic purse function.

The following types of payment card are in circulation: debit cards, credit cards, retailer

cards and prepaid cards (single purpose and multipurpose).

#### *Debit cards*

Debit cards are cards with direct electronic access to a bank account with the use of a PIN. The majority of debit cards are equipped with a magnetic strip and an electronic purse. Three types of debit function can be distinguished: withdrawal, payment and mere identification in the context of payments.

Debit cards are used to make withdrawals, either in cash at an ATM or in electronic money by loading an electronic purse. In 2005 over 93% of all cash withdrawals were made at ATMs, accounting for 463 million transactions. The average amount withdrawn increased to €117 per transaction. In 2005 all 7,520 ATMs in the Netherlands were interoperable and were connected to the major international ATM networks. For security purposes, use of another bank's ATM is subject to a daily limit in terms of both the number of withdrawals and the amount withdrawn.

Debit cards are used mostly at EFTPOS terminals in shops, restaurants and hotels, etc. In the mid-1990s the number of POS increased rapidly, as did the volume and value of the transactions. In 2005 the total volume of EFTPOS transactions was 1,334 million, with a total value of €59.5 billion, which amounts to 35% of the total volume but only 1% of the total value of cashless payments. At the end of 2005 206,000 EFTPOS terminals were in operation.

Debit cards are also used for identification in the context of payments. They are increasingly being used as an electronic identification device to authorise payments over the internet (internet banking).

#### *Credit cards*

The volume of credit cards in circulation has increased considerably, rising from 420,000 in 1988 to over 5 million in 2005. The number of credit card transactions at the point of sale is still modest: just over 2% of non-cash payments



are made by credit card. Since most Dutch banks issue MasterCard, this brand is used the most often. Despite the fact that most banks do not issue Visa, the number of Visa cards issued is high owing to a co-branding strategy with non-financial institutions (insurers, automobile associations, etc.). Some retail chains actively promote their own retailer cards (private label cards), but from a payments point of view their role is insignificant compared with the use of payment cards and cash.

#### **Prepaid cards**

A prepaid card is a payment card which contains a balance that is deposited in advance. The most widespread prepaid card is the Chipknip, a card equipped with an electronic purse. In 2005 the number of Chipknips in issue was around 18 million. They can be loaded at 6,637 loading devices and used for payments at 203,400 EFTPOS terminals. In 2005 147 million transactions were made by means of Chipknips. For consumers, the added value of the e-purse is probably its convenience for small-value payments compared with notes and coins. Indeed, two-thirds of all transactions are payments for parking, catering and purchases from vending machines.

#### **2.2.4 CHEQUES**

Given that a satisfactory giro transfer system has been available to the public from a very early stage, non-guaranteed cheques have never played a significant role as a general payment instrument in the Netherlands. In the second half of the 1960s, following the large-scale introduction of sight accounts for the public, the guaranteed cheque was introduced together with a cheque guarantee card showing the cardholder's account number and signature. For point-of-sale payments, it served as one of the main non-cash instruments in the period between 1970 and 1990. In the 1990s the number of cheque payments declined substantially, reflecting their replacement by EFTPOS payments. Given the decline in the use of cheques, as well as the high processing costs, Dutch banks stopped issuing cheques in

July 2001 and terminated processing by the end of that year.

### **2.3 RECENT DEVELOPMENTS**

#### ***New distribution channels for payment services***

Most corporate and private bank customers use electronic banking systems to send payment orders and to monitor their accounts online. Ever more Dutch consumers are opting for internet banking to communicate with their banks; there were around 6 million users in 2005. Internet banking enables account holders to access their accounts from any location in the world. Security is guaranteed using hard tokens (calculators or the already widespread chip cards).

The popularity of internet banking offers opportunities to realise further gains in payments efficiency by adding new payment products. Since October 2005 Dutch consumers have been able to settle online purchases with iDEAL, a new payment method developed by the large commercial banks. Internet banking customers can use iDEAL to place orders with internet shops in the Netherlands and pay for these directly from their bank account. The internet shops receive a guaranteed payment confirmation from the bank. Furthermore, in 2007 these commercial banks and TNT introduced a new joint service for bill payments on the Dutch market: digital billing and online payment. Instead of a paper invoice with an inpayment transfer, the direct debit collectors send an e-mail notifying customers that they can view the invoice in a digital mailbox provided by TPG on the internet. In order to make the payment, the customer clicks on a link to a special section of its bank's website, the "Invoice Box", containing a ready-to-use payment order, which may be sent via the usual authorisation process.

Besides electronic banking, banks provide automated banking services via telephone, particularly for their private customers, allowing customers to access their account information, transfer money to and from their

own savings and investment accounts and send credit transfers to third-party accounts.

Companies have been established which specialise in back office payment processing on behalf of internet retailers. These “payment intermediaries” carry out the administration and settlement of all incoming internet payments, no matter what kind of payment instrument or method is used. Some banks offer the same kinds of service, increasing the competition between banks and non-banks, such as consulting agencies and telephone companies.

Banks and retailers in the Netherlands have chosen to gradually migrate the retail payments infrastructure for cards to the EMV standard. This major operation concerns both the cards on the issuing side and the terminals on the acquiring side. Banks started issuing EMV-compliant credit cards in 2005. It is expected that by the end of 2007 all credit cards issued will be EMV-compliant. The issuance of EMV-compliant debit cards started in 2006 and the migration of debit cards is expected to be completed by the end of 2010. Banks have also started to make their ATMs EMV-compliant and, by the end of 2007, all ATMs are expected to be EMV-compliant. The roll-out of EMV-compliant POS terminals has started, and 60% of POS terminals are expected to be EMV-compliant by 2010 and 90% by 2012.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

Cashless payments are processed in two interconnected payment systems:

- the system of De Nederlandsche Bank; and
- Equens.

##### *The system of De Nederlandsche Bank*

De Nederlandsche Bank is responsible for the processing of interbank (large-value) payments

in euro and the management of its account holders’ balances. TOP, the domestic large-value giro payment system of De Nederlandsche Bank, ensures that transactions are processed correctly and on time and that adequate information is provided about them. Besides carrying out large-value interbank payments, the system is also used by banks to process payments for their own customers. Further, the net settlement of several low-value payment systems, such as those of Equens and Euronext, is also processed through TOP. Finally, TOP offers access to the pan-European payment system TARGET.

Although nearly every Netherlands-based bank holds a TOP account, TOP’s customers also include companies offering clearing and settlement services (such as Equens and Euronext), the Dutch government and several of its institutions. While foreign central banks and supranational institutions are not “participants” (account holders), they channel their payment orders through De Nederlandsche Bank. Private persons and non-financial enterprises cannot hold TOP accounts.

##### *Equens*

In 1967, in order to facilitate the collection and processing of retail transfers between their customers, the Dutch banks, with the exception of Postbank, formed a central clearing house that is now called Equens. This network currently consists of 68 banks. Equens’ shares are held by nine banks. Equens is a dual processor: it offers both cards and giro processing. Giro processing involves clearing and settlement-related operations, including the settlement of card transactions. Card processing covers both issuing and acquiring business.

It should be noted that, apart from clearing which takes place through the facilities provided by Equens, a considerable amount of retail transactions are processed at the larger banks themselves using in-house processing facilities. Since the banking sector is highly concentrated, many payments are transfers between customers of the same bank. A large proportion of these

payments do not reach the clearing house but are transmitted to the individual bank's processing centre. However, some banks have chosen to send such "on-us" transactions to Equens for cost and efficiency reasons.

## **3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM: TOP**

### **3.2.1 GENERAL OVERVIEW**

TOP has been designed for processing and settling large-value payments in euro, but there are in fact no upper or lower value bounds. TOP is not an acronym, the system being named after the market sector in which it operates: the "top", i.e. the sector handling the largest-value payments in the Netherlands.

TOP uses the SWIFT FIN network for communication on the processing of payments within the V-shape model. TOPView is a secured internet link by which banks can get real-time information on the status of transactions and manage their liquidity. TOP is an indispensable part of the pan-European payment system, TARGET.

### **3.2.2 OPERATING RULES**

The operational rules are laid down in the User Guide TOP. The guide describes time schedules, guidelines, access criteria, payment processing, accounts, payment products and operational guidelines of the TOP payment system.

The TOP system only handles credit transfers on a gross basis, which means that payments are settled immediately and irrevocably, provided that the paying bank has a credit balance on its current account or enough unused collateral to make a secured overdraft. In the event of inadequate cover for a transaction, the payment order cannot be processed. A queuing mechanism has therefore been developed. Participants can move payment orders up or down in the waiting queue using TOPView. Payment orders can be scheduled and TOP can store payment orders up to two years ahead of the value date. Scheduled transactions may be withdrawn via TOPView; for this reason, until

the value date, the payee cannot obtain information on scheduled credit transactions to its account.

TOP allows users to assign up to three different priorities to a payment order: priority two for urgent payments, priority three for normal payments and priority nine for non-urgent payments. Payments in the last category are not processed immediately. High priority payment orders must be processed as quickly as possible; indeed, part of the balance may be reserved for such orders. Participants cannot assign priority one, which is the highest priority determined by De Nederlandsche Bank and is reserved for, among other things, the settlement of ancillary systems.

### **3.2.3 PARTICIPANTS IN THE SYSTEM**

The access criteria for participants in TOP are set by the ESCB in the context of the participation of credit institutions in the TARGET system. Within this framework, De Nederlandsche Bank sets the following access criteria for participation in TOP:

- financial departments of central or regional governments of EU Member States which are active in the money market;
- institutions forming part of the public sector under Article 3 of Council Regulation (EC) No 3603/93 which have been authorised to hold accounts for customers;
- supervised credit institutions under Article 1, first indent, of Directive 77/780/EEC, which are established in the EEA;
- supervised investment firms under Article 1(2) of Directive 93/22/EEC which are established in the EEA;
- supervised providers of clearing and settlement services; and
- central banks established in the EU the RTGS systems of which are not connected to TARGET.

In addition to domestic central government institutions, all authorised credit institutions are eligible to participate, including Dutch-based subsidiaries of foreign banks and branches of foreign banks to which the Second Banking Co-ordination Directive is applicable. The same holds for supervised non-bank financial intermediaries such as payments and securities clearing institutions, but they have limited use of the system and do not have access to the credit facilities. The rules are identical for all participants. Each participant subject to reserve requirements normally holds one reserve account, which may also be used for payment purposes. Besides the above-mentioned institutions, De Nederlandsche Bank offers accounts to other NCBs and some international financial institutions. Such institutions do not have direct access to the system, but use the central bank as their correspondent.

### 3.2.4 TYPES OF TRANSACTION HANDLED

TOP processes both domestic and cross-border transactions. The most common types of transaction are briefly discussed below. In TOP, each transaction type is designated by a letter code.

#### *FA transaction*

An FA transaction is a standard transaction for domestic interbank payments, e.g. call loans. FA transactions can be entered by each participant in respect of accounts for which the participant is entitled to authorise transactions.

#### *Cash cover transaction*

A cash cover transaction (CH) is used for the acquisition of banknotes and coins, which are subsequently transported by cash-in-transit companies from the DNB agencies to participants. Participants authorised to make such withdrawals effect a cash cover transaction, debiting their own account and crediting the DNB agency concerned, before the withdrawal takes place.

#### *Trade-for-trade transactions*

Trade-for-trade (TfT) transactions concern the gross settlement of OTC securities transactions and the net settlement of stock exchange transactions.

#### *Net settlement transactions for domestic clearing systems*

The TOP system is used for the settlement of retail payments, cleared by Equens. These are divided into three types of transaction: the debit (DK) and credit (CK) parcels made up of the bulk retail payments processed by Equens, and the urgent payments from Equens' special Telegiro circuit (TV; see Section 3.3.4).

The daily stream of transfers processed by Equens is split into "parcels" (DK and CK). Instead of once a day, as is still the case for the settlement of the other ancillary systems, net settlement of retail payments takes place around every 30 minutes. This procedure is further described in Section 3.3.5.

#### *8007 transactions*

An 8007 transaction (DP) is a payment order involving a cross-border payment in which at least one non-resident account holder is involved. These transactions do not affect the balance of payments as such, because they only refer to the domestic transaction between the domestic party's bank and the correspondent bank of the foreign party.

#### *Cross-border transactions*

In TOP, there are two types of cross-border transaction conducted through TARGET: Interlinking customer payments (IC) and Interlinking interbank payments (IB).

Cross-border payments to banks in countries that have not yet opened for operations but that will be operating on the day in question are accepted by the system.

### 3.2.5 OPERATION OF THE TRANSFER SYSTEM

TOP is in operation from 7 a.m. to 6 p.m. CET for the receipt of payment orders requiring same-day settlement. The closing time for customer payments is, however, 5 p.m. CET. Within these operating hours, allowance must be made for interbank deadlines for certain transaction types and TARGET deadlines for customer payments. TOP's opening hours are in line with TARGET's opening times and calendar of operating days.

When TOP closes, the payments supervisor starts the end-of-day process, intended, among other things, to reveal whether all queues are empty. If not, the payments supervisor will, in consultation with the parties involved, take appropriate action (ranging from a request to replenish an account balance to the cancellation of transactions). If all queues are empty, the value date is closed by preparing and transmitting the "statement of account", the "end-of-value date survey" and the "daily 8007 external payments report".

### 3.2.6 TRANSACTION PROCESSING ENVIRONMENT

Participants communicate with the TOP system through the SWIFT FIN network and through TOPView.

At the end of 2000 TOP expanded its capacity to send and receive messages via SWIFT and formed a "closed user group" in order to serve all participants. TOP has been recognised as a "market infrastructure" within SWIFT, which means a higher service level provided by SWIFT and high priority during recovery. SWIFT has become the primary channel for payment-related communication for TOP participants. As the SWIFT network allows for straight-through processing (STP) and had to be used for cross-border transactions through TARGET, banks increasingly used it to deliver domestic payment orders in TOP as well, making the TOP End Stations (TES) that were formerly used to communicate with TOP redundant. In the second half of 2001 the TESs were discontinued.

TOPView was introduced by De Nederlandsche Bank in the spring of 2001. TOPView offers secured browser-based access to payment information such as waiting queues and account balances. Customers in a Windows environment are connected to a virtual private network (a secured network over the internet). Authentication is effected by means of a digital certificate on a chip card. This communication channel cannot be used for credit advices or transfer orders, but banks can rearrange their queues, change the prioritisation of their payments or cancel payments for future value dates. It is also possible to gain an overview of payments in TOP for the last five working days and to monitor fulfilment of the cash reserve requirement.

### 3.2.7 SETTLEMENT PROCEDURES

During opening hours, TOP settles payments irrevocably and with immediate finality upon receipt. As soon as the account cover is sufficient, TOP ascertains whether one or more items from the queue can be processed. Following settlement, debit and credit notifications are sent to the account holders concerned.

If account cover is not sufficient, payments are queued. Orders are arranged within the queue on the basis of their priority and, within each priority class, on the basis of the time of receipt. The order of transactions within the queue also governs the order of processing: transactions in the same priority class are handled on a FIFO basis. As soon as a credit transaction is effected, TOP once again checks whether transactions from the queue can be processed.

The order of queued items can be influenced by means of "pointing" using TOPView. A payment order may be pointed forward, that is, towards the head of the queue, immediately before the (other) orders with priority two. Orders with priority one always remain at the head of the queue. An order may also be pointed backwards, that is, towards the rear of the queue, immediately after orders with priority three. Furthermore, participants are allowed to change

the order of queued transactions within the same priority class.

A queued transaction cannot be revoked. Queued transactions can only be cancelled by the payments supervisor of De Nederlandsche Bank in consultation with all parties involved.

### 3.2.8 CREDIT AND LIQUIDITY RISKS

TOP only settles transactions where sufficient cover is available, permitting only secured (collateralised) overdrafts, which significantly reduces liquidity and credit risks.

### 3.2.9 PRICING POLICIES

As a principle, De Nederlandsche Bank recovers its costs. It charges each account holder an annual fee of €3,000. In addition, transaction fees are charged according to the communication channel used and the number of transactions per month. Cross-border transactions through TARGET are subject to the TARGET pricing structure.

### 3.2.10 STATISTICAL DATA

The total transaction volume in TOP in 2005 was 4.7 million, with a total value of €30,700 billion. The average value per transaction was €6.5 million. As mentioned above, TOP processes different types of transaction. First, domestic transactions, including securities transactions, net settlement transactions and cash cover transactions. In 2005 the share of these domestic transactions was 83% of the total volume and 52% of the total value processed by the system. Second, cross-border payments through TARGET, with an 17% share in total volume and a 48% share in total value in 2005.

### 3.2.11 MAIN PROJECTS AND POLICIES BEING IMPLEMENTED

After the successful introduction of the “parcel settlement procedure”, which increased the settlement frequency of cleared retail transactions, De Nederlandsche Bank and Equens envisage modifying the settlement procedure of urgent “Telegiro” retail payments. These payments are processed very rapidly and

settlement is guaranteed by a separate collateralised credit facility at De Nederlandsche Bank (see Section 3.3.4). The end-of-day net positions are finally settled at DNB. From June 2007 Telegiro transactions have been settled directly in TOP, in order to improve efficiency, from a liquidity management point of view, by uniting the two separate credit facilities.

## 3.3 THE RETAIL PAYMENT SYSTEM: EQUENS

### 3.3.1 GENERAL OVERVIEW

Banks participating in the ACH have a common account numbering system, which allows for an automated number check. Account numbers, as well as names and addresses of account holders of the participating banks, are administered centrally at Equens.

Equens acts as an intermediary between the participating banks. It receives transfer orders and converts them automatically into debit and credit items for individual banks and individual account numbers. The transfer orders can be sent in by individual banks or by large companies. Equens collects the entry data for all financial transactions and transfers these data to the bank. In some cases, Equens passes the payment details straight on to the customers of the bank.

The technical operations by Equens are followed by financial settlement. The participating banks have authorised Equens to manage the daily settlement process at De Nederlandsche Bank on their behalf; the account of each bank is debited or credited by the difference between the total debit and credit items.

Equens does not have a financial relationship with bank customers. The individual bank itself makes the actual debit and credit entries in the accounts and produces and sends the statements of account, using automated processes.

Equens not only acts as the automated clearing house for interbank payments, but also as the central routing switch for all EFTPOS transactions and ATM transactions involving



customers of other banks, and as a subcontractor for parts of the MasterCard issuing and transaction authorisation process. Since June 2004 PaySquare has been an independent subsidiary of Equens. PaySquare is responsible for the acquiring and issuing of the credit cards MasterCard and Visa and the debit product Maestro.

The Equens clearing house system is fully automated. The number of transactions processed in 2005 was 3,272.1 million, with a total turnover of €1,942.6 billion.

### 3.3.2 PARTICIPATION IN THE SYSTEM

Almost all deposit-taking banks participate in the system. De Nederlandsche Bank is not a participant, although it uses some of the Equens services.

### 3.3.3 TYPES OF TRANSACTION HANDLED

Equens handles all types of retail transaction: mass regular disbursements by firms such as the payment of salaries, express payments, regular payments by consumers (e.g. the payment of utility bills by means of acceptgiros (inpayment transfers) and direct debits), and all kinds of retail transaction using debit and credit cards, as well as electronic purses.

### 3.3.4 OPERATION OF THE SYSTEM

The system is a net settlement system. In fact, it comprises two systems: the Clearing and Settlement System (CSS) for bulk payments, and the Telegiro network for urgent payments.

The Telegiro network was created for urgent payments between banks and between their customers. This service includes very fast (i.e. within a few minutes) and guaranteed settlement and notification to the beneficiary of the irrevocable settlement. It is often used for paying relatively large amounts, for example in real estate transactions. The guarantee does not involve any risk because the system is based on a collateralised credit facility which is separated on a daily basis from the facility that participating banks have at DNB. The formal

settlement of these secured interbank payments takes place once a day at DNB on a net basis.

### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

Although processing takes place in two operating centres, the clearing house system operates in an integrated manner. Transfer orders may be submitted in different ways, by both banks and corporations. The latter deliver their mass payment orders and direct debits directly to the clearing house via data communication lines. Banks use the same kind of data carriers, but may also present bulk payment orders on paper, in which case Equens converts them into digital form. Equens processes paper-based standard payment orders, as well as cheques and acceptgiros, using image processing technology. Consequently, it is not necessary for Dutch banks to exchange any paper-based payment information.

In October 2001 the old “bulk settlement”, in which all retail transactions were cleared in two daily runs at Equens, was replaced by the “parcel settlement” procedure. There are two transaction bundles: the “debit” and “credit” parcels. Debit parcels are compiled for one bank at a time, and contain only transactions with that bank on the debit side and several payees on the credit side, such as salary payments or creditor payments by business clients. Credit parcels include transactions involving several banks on both the debit and the credit side, such as direct debits, ATM withdrawals and EFTPOS payments. The clearing of retail payments closes every 30 minutes for settlement at De Nederlandsche Bank and then reopens for the next clearing round. Banks may increase the frequency of settlement of debit parcels by specifying a maximum total amount. Routing for the debit and credit banks involved takes place on the basis of a central file, containing all the account numbers and customers’ names and addresses.

Payment orders delivered before 3.30 p.m. CET can be settled the same day.

The banks have a common account numbering system, which allows for automated error controls. All numbers contain ten digits and are centrally distributed by Equens. Although it is not a formal participant in the clearing house, De Nederlandsche Bank also makes use of the Equens account numbering system.

### 3.3.6 SETTLEMENT PROCEDURES

Equens is authorised by the participating banks to effect daily settlement payments at De Nederlandsche Bank on their behalf. During settlement, banks with a debit position (short banks) pay the amounts due on Equens' clearing account at De Nederlandsche Bank, after which Equens pays out to the banks with a credit position (long banks). Settlement of the debit and credit parcels takes place around every 30 minutes between 7.30 a.m. and 5 p.m. CET. Multiple settlement reduces systemic risk, improves the service by providing irrevocable output after settlement of each parcel, and speeds up the overall processing time of transfer orders.

Settlement of the Telegiro sub-system takes place at around 2 p.m. CET. Settlement is subject to sufficient cover being available for debit positions. During the course of the morning banks are informed by Equens of the net results to be expected so that they can raise additional liquidity in the money market before settlement time, if need be.

### 3.3.7 CREDIT AND LIQUIDITY RISKS AND THEIR MANAGEMENT

Credit and liquidity risks are not managed within the clearing house system, but rather in TOP via the system's relationship with the money market. Equens informs the participating banks of the net retail clearing results to be expected; this information is then used by the liquidity managers of the banks. Credit and liquidity risks are limited in the Telegiro sub-system, as well as in TOP, owing to the fact that it is fully collateralised. The introduction of multiple net settlement further limits the risks stemming from the net settlement process.

### 3.3.8 MAIN PROJECTS AND POLICIES BEING IMPLEMENTED

In addition to parcel settlement, another improvement concerning the speed and reliability of payment processing is the possibility of establishing a direct connection between customers' administrative systems and Equens' technical infrastructure. I-connect offers banks and firms several ways of connecting their administrative systems directly to the processing system. Using an internet browser in a Windows setting facilitates the dial-up process either by way of a local service provider or via a direct line to Equens. Mass transfer orders (over 50,000) are transported by ISDN (integrated services digital network) lines using the file transfer protocol.

## 4 SECURITIES SETTLEMENT SYSTEMS

In September 2000 AEX, BXS and ParisBourse officially merged to form Euronext. A single integrated market was formed, comprising a cash market for equities and bonds, a derivatives market and a commodity market. The merging of all the exchange-related activities was phased. The first phase, introducing a single platform for trading with unified listing and trading rules, with the former national exchanges becoming local entry points, was implemented during the course of 2001. The second phase, unified clearing, was finalised by the end of 2002. Clearing of securities and options has been centralised in Paris (Clearnet). The third phase, a single settlement platform, provided by Euroclear, will be fully implemented in 2010.

Since its launch, Euronext has expanded its European presence both by taking over the London International Financial Futures and Options Exchange (LIFFE), the UK derivatives exchange, in 2002, and, thereafter, by merging with Bolsa de Valores, the Portuguese exchange. Cross-membership and cross-access agreements

<sup>1</sup> Further information on the Euronext exchanges is contained in the country chapters for Belgium, France, Portugal and the United Kingdom.

were concluded with the Luxembourg and Warsaw stock exchanges.<sup>1</sup>

## 4.1 TRADING

### 4.1.1 INTEGRATED TRADING IN EURONEXT

The three domestic financial centres continue to use their local primary markets for listed companies. The listing requirements have been harmonised so that Euronext operates as a single integrated exchange for all listed securities. There is a single group of listed securities, although these securities enter the market via one of the three listing centres (Amsterdam, Brussels or Paris). Each listed security is accessible to all Euronext members, regardless of the nationality of the issuer or the member. It has been agreed with the regulators in the three member countries that a member licensed in one particular market will automatically receive a “passport” enabling it to operate in another Euronext country as well.

For cash securities, Euronext provides a unified order-driven trading platform based on the French system Nouveau Système de Cotation (NSC). For derivatives, the migration from floor trading to electronic trading was achieved in December 2002, allowing the operation of a single options market accessible from each of the three Euronext entry points. Moreover, Euronext acquired LIFFE and chose to migrate to the LIFFE CONNECT electronic system. From November 2004 the integration of Euronext’s markets was completed with a single platform for cash products (NSC) and a single platform for derivatives products (LIFFE CONNECT).

### 4.1.2 SECURITIES TRADING

Securities trading has been fully harmonised since October 2001, when the NSC system that was already in use in France and Belgium was introduced in the Netherlands.

In 2004 the Euronext securities market was segmented as follows. The top segment comprised the 100 largest companies in terms

of market capitalisation and certain minimum liquidity criteria. The second segment consisted of the next 150 largest companies. In addition to these “Top Stocks” segments, Euronext operates segments designed for companies operating in the New Economy (“Next Economy”) and for small and mid-cap companies. Euronext also has a bond segment for both government and corporate bonds.

#### *Securities markets*

Transactions in listed securities on the retail market must be settled through the Euronext order book. For the wholesale market, prices may be determined outside Euronext Amsterdam. The exchange, however, must be notified of the transaction and the price at which it was concluded. Prices of these “block trades” may differ by only a certain percentage from the order book prices. Euronext discloses the direct deal turnovers to the market to promote fair pricing in the retail segment.

Euronext Amsterdam opens at 9 a.m. and closes at 5.30 p.m. CET.

#### *Financial intermediaries*

Securities trading is conducted through admitted institutions, that is intermediaries authorised by Euronext Amsterdam to perform certain functions. Two main categories of intermediary can be distinguished: brokers and dealers. Brokers trade exclusively on account of third parties, which can be other members. Dealers are allowed to trade on their own account only, and certain dealers act as liquidity providers. Liquidity providers take positions against buyers or sellers, where necessary by entering buy and sell prices in the electronic order book for a range of securities assigned to them by Euronext Amsterdam. Apart from this functional difference, a distinction is made between securities credit institutions and non-securities credit institutions, the difference being registration at De Nederlandsche Bank. As the latter are not under De Nederlandsche Bank’s supervision, the cooperation of a bank is required for the settlement of their cash and securities positions.

### *Trading systems*

The NSC system is essentially an order-based system, which means that buy and sell orders are placed in the electronic order book and prices are determined by matching corresponding orders. In the NSC system two different trade procedures exist: continuous trading and auction trading. The more liquid securities are continuously traded, whereby orders are directly matched in the electronic order book and price determination is a continuous process. Less liquid securities are traded at auction. All incoming orders are collected in the electronic order book and auctioned twice a day. To enhance liquidity, Euronext Amsterdam has a liquidity-providing system (ELPS). For certain securities, traders act as liquidity providers, which means that they are obliged to quote prices in these securities when liquidity is low. This introduces a quote-driven element into the system. In a quote-driven system prices are determined by the quotations made by market-makers or dealers.

#### 4.1.3 DERIVATIVES TRADING

##### *Derivative markets*

Euronext Amsterdam Derivative Markets N.V. is responsible for organising trading in derivatives, a category which includes options on shares, bonds, precious metals and currencies, as well as financial and agricultural futures. Options and futures are also traded on a number of indices, such as the AEX index, which measures the performance of 25 leading Dutch companies.

##### *Financial intermediaries*

Three main categories of intermediary can be distinguished: brokers, traders and public order correspondent members (the last category operate in the options market only). Brokers can be divided into “introducing” brokers and “executing” brokers. An introducing broker trades derivatives on account of third parties and on its own account. The orders of an introducing broker are carried out through the services of an executing broker, which executes trades on its own account or for other members.

Public order correspondent members trade options through the services of an introducing broker, on their own account or on account of third parties. Traders only trade on their own account, and some traders act as liquidity providers. Their main function is to ensure that quotes, in option classes assigned to them, are continuously available.

##### *Trading systems*

Trading in financial futures takes place between executing brokers and traders. Brokers and traders quote their prices and conclude transactions. Traders and brokers also specify the number of contracts covered by the prices they quote. Prices are quoted in competition with other traders. Trading in financial futures is fully screen-based.

Trading on the agricultural futures market also takes place (since August 2002) through a fully screen-based system. Investors can buy and sell futures on potatoes and pigs, or trade options having potato futures as their underlying instrument.

Euronext Amsterdam Derivative Markets also allows professional parties to conclude options contracts outside the central market and still present them for settlement at the exchange (OTC transactions). In the Euronext Amsterdam Derivative Markets these OTC transactions are referred to as professional (or “Prof”) transactions. These contracts must fully comply with the exchange’s standard specifications with regard to maturity, underlying instrument and exercise price. In the “Prof” system, transactions are settled in the same way as exchange transactions. Contracts on the OTC market are negotiated by the market participants in bilateral consultations. On the OTC market, there is more choice and flexibility.

## 4.2 CLEARING

### 4.2.1 INTEGRATED CLEARING IN LCH.CLEARNET SA

Since 1 February 2001 the clearing functions of the three exchanges have been centralised at Clearnet SA, the clearing house of Euronext

Paris, which has branches in Brussels and Amsterdam (Clearnet Amsterdam Branch).<sup>2</sup>

The assets and liabilities of the national clearing systems were transferred to Clearnet SA, which became the central counterparty (CCP) for all transactions on all Euronext exchange floors. The software (Clearing21) combines clearing functions for equities and bonds with clearing functions for derivatives (integrating positions and risks on different markets). Clearing21 is used in Brussels and Paris and has been in use in Amsterdam for the securities market since 25 October 2002. Prior to that date the national clearing system was in use. For the options market, Euronext completed the integration of the clearing institutions at the end of 2003. At the same time LCH.Clearnet was created by the merger with the London Clearing House.

#### 4.2.2 SECURITIES CLEARING

Amsterdam has separate clearing institutes for securities and derivatives. These subsidiaries of Euronext Amsterdam Clearing & Depository N.V. are known as Euronext Amsterdam Stock Clearing and Euronext Amsterdam Derivatives Clearing (operating as Clearnet Amsterdam Branch since 1 February 2001). In both cases, Clearnet acts as the CCP and guarantees the settlement of transactions. Settlement of securities takes place on a net basis at Euroclear Nederland. OTC transactions can be settled immediately on a gross basis, either through the clearing institute or through the trade-for-trade facility offered by De Nederlandsche Bank and Euroclear Nederland.

LCH.Clearnet organises the clearing and settlement of all retail transactions and some wholesale transactions on the stock exchange.

In the course of the trading day (since October 2002), trades are automatically entered into the securities clearing systems. Clearnet becomes the counterparty for both parties to a transaction as soon as the trade has been processed and transaction confirmation reports have been sent to the clearing members. By placing itself between the two parties, LCH.Clearnet

guarantees the completion of every transaction.

#### *Clearing member structure*

Clearing is based on a layered clearing member structure: the clearing organisation forms the top layer, the clearing members are in the layer below, followed by the admitted institutions and then their customers. In principle, the clearing organisation deals with the clearing member only, the clearing member in turn deals with the admitted institution, and the institution deals with its customers. This is also referred to as a principal-to-principal relationship.

Participating clearing members may become a general clearing member or a direct clearing member. Direct clearing members are only permitted to clear transactions for their own customers or for themselves. General clearing members can also settle transactions on behalf of other exchange seat holders, which in turn have their own customers.

#### 4.2.3 OPTIONS CLEARING

LCH.Clearnet organises the clearing and settlement of all derivatives transactions.

At the end of the trading day, trades are transmitted via an automatic link from the options market systems to the derivatives clearing system. As soon as options clearing has processed the trades and sent transaction confirmation reports to clearing members, it automatically becomes the clearing member's counterparty. The clearing member's position with LCH.Clearnet is held by an affiliated bank or stockbroker. Clearing members acting for market-makers hold a position on behalf of their affiliated market-makers.

#### *Clearing members*

Similarly to securities clearing, options clearing is based on a system of clearing members. Clearing members are exchange seat holders and must meet special requirements in the areas of expertise, risk management and capitalisation.

<sup>2</sup> Further information on LCH.Clearnet SA is contained in the French country chapter.

Their responsibility is to settle transactions for their own account and for third parties. Seat holders that are not clearing members must make arrangements with a clearing member for the settlement of their transactions.

LCH.Clearnet guarantees that every transaction it accepts will be completed (by virtue of its principal-to-principal relationship with clearing members). It acts as counterparty for every buyer and seller. Clearing members give their customers the same guarantee. LCH.Clearnet requires collateral for positions in options and futures, as stipulated in a set of risk management rules. Margin requirements are a vital aspect of this system, providing a buffer against the risks involved in options and futures trading.

Professional parties qualify for special arrangements, which are geared to the specific needs of the OTC market in options. Under the terms of the “Prof” regulation, for example, contracts with the same specifications as exchange-traded contracts can be traded OTC and still be presented to the exchange for clearing.

### 4.3 SETTLEMENT

#### 4.3.1 INTEGRATED SETTLEMENT IN EUROCLEAR

Settlement involves the transfer of ownership of securities. For the time being, Euronext settles securities at the local CSDs. Furthermore, cash settlement takes place in central bank money in the country where the clearing member involved is headquartered.

In order to create a single platform for both clearing and settlement, a joint venture is planned between Euronext and Euroclear aimed at centralising all settlement and depository functions for cash, equities, bonds and derivatives in a single system within the Euroclear corporate structure. Euroclear is an international central securities depository (ICSD) which has merged with the national CSDs and which settles transactions involving international and domestic securities using a network of local correspondents for both money

and securities settlement. Euroclear does not act as a CCP. Euroclear is to provide settlement in central bank as well as in commercial bank money.

The French CSD, Sicovam, merged with Euroclear at the beginning of 2001. Since 30 April 2002 Euroclear has held 100% of Necigef’s shares. In 2005 the Belgian CSD, CIK, also concluded an agreement with Euroclear. All (I)CSD’s are owned by Euroclear SA, the parent company of Euroclear Bank (Brussels), Euroclear France (Paris), CRESTCo (London), Euroclear Nederland (Amsterdam) and Euroclear Belgium (formerly CIK Brussels).

#### 4.3.2 SECURITIES SETTLEMENT

Transactions in securities can be settled in two different ways: via the netting system or via the TtT facility for DvP settlement of off-exchange transactions.

##### *Exchange settlement*

The vast majority of all settlements at Clearnet are processed using the netting system. Settlement consists of the delivery of the relevant securities to Stock Clearing, which delivers the securities to the designated recipient. Stock Clearing determines the amount of the different securities that each clearing member should deliver or receive, and determines the counter-value in euro of every delivery or receipt. At the end of the day, all positions held at Stock Clearing are netted. Transactions are settled on a net basis on T+3, i.e. on the third trading day after the transaction. Stock Clearing also initiates cash settlement between the deliverer and recipient. Settlement vis-à-vis the common counterparty takes place on a DvP basis. Money transactions in euro are handled by De Nederlandsche Bank. In 2005 the volume of these settlements amounted to 9,520 for Stock Clearing and 139 for Derivatives Clearing. The exchange transactions may be conducted from 9 p.m. until 11 a.m. CET for Stock and from 7.30 a.m. until 8 a.m. CET for Derivatives.



#### *Off-exchange settlement*

In addition to the settlement of on-exchange transactions and free-of-payment transfers, Euroclear Nederland offers a facility for DvP settlement of off-exchange transactions, called Tft, in cooperation with De Nederlandsche Bank. Each transaction is settled individually. Securities are transferred between accounts kept at Euroclear Nederland, while funds transfers are made in real time via the accounts held by the relevant Euroclear Nederland participants at De Nederlandsche Bank. As transfers made in Euroclear Nederland and in TOP are final and irrevocable, there is no counterparty risk. In 2005 De Nederlandsche Bank settled 1.2 million Tft transactions, with a total value of €952 billion. Tft transactions may be made between 8.30 p.m. and 10 p.m. CET, and between 7 a.m. and 4.30 p.m. CET.

#### **4.3.3 CENTRAL SECURITIES DEPOSITORY – EUROCLEAR NEDERLAND**

The depository is responsible for book-entry transactions and the custody, management and administration of all kinds of securities on behalf of Euroclear Nederland participants. Banks may deposit securities held by their customers with the depository, resulting in book-entry positions which facilitate settlement of securities transactions by book-entry transfer. Once the depository declares that securities have been admitted to the book-entry transfer system, these securities are governed by the Dutch Securities Giro Act. This means that investors in those securities are joint owners of the securities in the system and their ownership rights will not be affected if their bank or the depository goes into receivership. Consequently, there is no counterparty risk in this settlement system.

The vast majority of all Dutch securities are registered at Euroclear Nederland. In December 2004 the total number of issuers registered was 2,323. Securities and bonds in custody had a total value of €750 billion (securities valued at market price and bonds at nominal value). The sharp fall in physical securities movements and the need to improve efficiency have led many

issuers to eliminate physical certificates (dematerialisation), often by replacing the original certificates with a single global note. The adaptation of the Securities Transfer Giro Act in November 2000 made full dematerialisation possible for the first time. The shift from bearer securities to book-entry-type securities now has a legal basis.

Euroclear Nederland is linked to CSDs in Austria, Belgium, Finland, France, Germany, Switzerland and the United Kingdom.

#### **4.3.4 CREDIT AND LIQUIDITY RISK MANAGEMENT**

Credit and liquidity risks are mainly controlled by margin requirements applicable to the participants and by the involvement of De Nederlandsche Bank as collateral manager, liquidity provider and settlement bank.

#### *Collateral requirements*

In order to secure the settlement of transactions, Clearnet requires clearing members to provide collateral for the fulfilment of margin obligations and as a contribution to the clearing fund.

The clearing organisation acts as the CCP in transactions. In the event of default by one of the parties, it may be required to purchase the securities to be delivered by the defaulting party or, in the case of an obligation to purchase, to sell the purchased securities. Consequently, it is also exposed to market risk arising from unexpected price movements. To that end, it obliges clearing members to provide collateral to equalise the margins required to fulfil the financial obligations. These margins are calculated on the basis of the obligations ensuing from positions taken (initial margin) and from non-realised profits and losses (variation margin). The collateral may consist of underlying instruments (cover on Euronext Amsterdam), domestic or foreign securities, or debt instruments.

In addition to margin requirements, a clearing fund has been established, which serves as a supplementary form of guarantee. It provides a

joint guarantee to the clearing members, in return for which they are required to pledge securities as collateral (Tier 1 and Tier 2 assets). The clearing fund's size is computed on the basis of contributed risk.

The total clearing fund of Stock Clearing should at least cover the price risk that arises for the clearing member with the largest position. This fund amounts to a minimum of €70 million. The total clearing fund of Derivatives Clearing is calculated on the basis of clearing members' average number of open options in a certain option fund or option series multiplied by a fixed amount per contract. The clearing fund of Options Clearing has no minimum level and currently stands at €300 million.

#### *De Nederlandsche Bank's involvement*

##### – Settlement bank

De Nederlandsche Bank acts as a settlement bank for Euronext Amsterdam Stock Clearing and Derivatives Clearing. Early every working day, De Nederlandsche Bank settles the outcome of both clearing processes in TOP. As mentioned above, off-exchange transactions are also settled on a gross basis at De Nederlandsche Bank.

##### – Management of collateral

De Nederlandsche Bank manages the collateral for the margin obligations of both Euronext Amsterdam Stock Clearing and Derivatives Clearing, as well as for both clearing funds. Clearing members meet their margin requirements by means of a guarantee based on collateral deposited at DNB in the form of book-entry securities. Banks keep their collateral – which can be used for exchange-related purposes, but also for Eurosystem monetary policy operations and intraday credit for payment purposes – on a collateral account at DNB.

##### – Guarantee model

De Nederlandsche Bank, in collaboration with Clearnet, introduced the “DNB offer” or “guarantee model” on 22 January 2002 as an extension to its collateral management function. Under this model, clearing members with branches in other Euronext countries can meet their collateral requirements by means of a guarantee based on collateral deposited centrally in one of the Euronext countries. This enhances the efficiency of their liquidity management, as it is not necessary to allocate collateral for the exchange under different jurisdictions. Information on the respective amounts of the margin and clearing funds is transmitted to Clearnet Paris. De Nederlandsche Bank differs from the other central banks involved in that every morning it freezes the exact amount it receives from Paris for the trades of the coming day.





# AUSTRIA

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## LIST OF ABBREVIATIONS

AGB	General terms and conditions of business – <i>Allgemeine Geschäftsbedingungen</i>
APC	Austrian Payments Council
ARTIS	Austrian Real-Time Interbank Settlement system
ATX	Austrian Traded Index
BörseG	Stock Exchange Act – <i>Börsegesetz</i>
BWG	Banking Act – <i>Bankwesengesetz</i>
CCP.A	Central Counterparty Austria
CECE	CECE Index: comprises indices covering the major blue chips traded in the Czech Republic (Czech Traded Index, CTX), Hungary (Hungarian Traded Index, HTX), Poland (Polish Traded Index, PTX) and Slovakia (Slovak Traded Index, STX), i.e. a benchmark index for the whole region.
CEE	Central and eastern Europe
CTX	Czech Traded Index
DCM	Direct clearing member
DepG	Securities Deposit Act – <i>Depotgesetz</i>
DS.A	Direct Settlement Advanced
EBK	Electronic banking communication – <i>Elektronische Bankenkommunikation</i>
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
EQOS	Electronic Quote and Order-driven System
FMA	Financial Market Authority – <i>Finanzmarktaufsichtsbehörde</i>
GABE	Financial services organisation specialising, inter alia, in ATM services – <i>Geldausgabeautomaten-Service GmbH</i>
GCM	General clearing member
GSA	Geldservice Austria
HTX	Hungarian Traded Index
LEOs	Long-term equity options

MIA	M-Commerce Interface Austria
NBG	Federal Act on the Oesterreichische Nationalbank
NCM	Non-clearing member
NTX	New Europe Blue Chip Index
OeBS	The banknote and security printing works, which is a subsidiary of the OeNB – <i>Oesterreichische Banknoten und Sicherheitsdruck GmbH</i>
OeKB	Austria's main financial and information service provider for the export industry and the capital market – <i>Oesterreichische Kontrollbank AG</i>
OeNB	The Austrian national central bank – <i>Oesterreichische Nationalbank</i>
ÖTOB	Austrian Futures and Options Exchange – <i>Österreichische Termin- und Optionsbörse AG</i>
PICS	Price Information, Clearing and Settlement system
PTX	Polish Traded Index
QUICK	Austrian electronic purse scheme
RDX	Russian Depository Index
RTX	Russian Traded Index
SICS	Securities Information Clearing and Settlement system
STEP.AT	The OeNB's clearing service (scheduled go-live date: mid-2007)
STUZZA	Research Association for Payment Cooperation – <i>Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr</i>
STX	Slovak Traded Index
Xetra	An electronic trading system



## INTRODUCTION

Austria's payment system is characterised by a dense network of bank branches and post offices and a large number of payment products. It is governed by Austrian law, which has fully implemented the relevant European directives.

The available infrastructure comprises uniform systems both for the processing of payment transactions with traditional instruments such as credit transfers or direct debits, and for the rapidly growing number of electronic payment media, which in Austria focus primarily on card payments at points of sale (POS) – increasingly including also electronic purses – as well as on withdrawals from automated teller machines (ATMs).

The Austrian system is marked by a high degree of cooperation in the banking sector and essentially functions on the basis of contractual agreements. The common platform for this cooperation is the Research Association for Payment Cooperation (Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr; STUZZA). This association was founded in 1991 and is owned by Austria's major commercial banks and the Oesterreichische Nationalbank (OeNB).

The OeNB has a say in all payment developments of relevance for the economy, with a particular focus on efficiency and security issues. The OeNB's operational role in the payments sector is focused on the settlement of interbank transfers. For this purpose, the OeNB operates the Austrian Real-Time Interbank Settlement (ARTIS) system, which is the Austrian component of TARGET. For EU-regulated interbank retail payments, the OeNB, in its capacity as direct participant in the EBA's STEP2 system, also provides an infrastructure enabling any Austrian commercial bank to access this pan-European retail payment platform as an indirect participant via the OeNB.

In accordance with its legal and statutory obligation to promote the sound and efficient operating of payment systems, and in line with the ESCB's policy statement on central banks' provision of retail payment services in euro to credit institutions, from 4 August 2005 the OeNB developed a clearing and netting facility primarily for domestic retail payments. STEP.AT went live on 2 July 2007, offering an efficient alternative to traditional correspondent banking, thus providing a SEPA-compliant infrastructure for Austrian and regional banks before expiry of the first SEPA deadline.

The OeNB's payment systems oversight activities are carried out on the basis of the Federal Act on the Oesterreichische Nationalbank (Nationalbankgesetz; NBG).

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### I.1.1 GENERAL LEGAL ISSUES

A variety of laws contain numerous provisions related to payment transactions (see below). The relationship between the transacting parties is largely governed by civil law, including, but not limited to, the Consumer Protection Act (Konsumentenschutzgesetz), and is subject to the general terms and conditions of business (AGB).

Article 1 of the Banking Act (Bankwesengesetz; BWG) stipulates that the carrying out of non-cash payment transactions and the clearing of checking accounts for others, if conducted on a commercial basis, are banking activities which can only be conducted by properly licensed credit institutions. The supervisor of credit institutions is the Financial Market Authority (Finanzmarktaufsichtsbehörde; FMA).

Foreign payment transactions are governed by the Foreign Exchange Act (Devisengesetz) and the announcements made by the OeNB pursuant to this Act (i.e. the regulations of the OeNB). Since 1991 foreign payment transactions have been fully liberalised.

The 1955 Cheques Act (Scheckgesetz 1955) and the 1955 Bill of Exchange Act (Wechselgesetz 1955) constitute the transposition into Austrian law of the respective Geneva Conventions of 1925.<sup>1</sup>

The Cross-Border Credit Transfers Act (Überweisungsgesetz), the Settlement Finality Act (Finalitätsgesetz), the Electronic Signatures Act (Signaturgesetz) and the E-Money Act (E-Geldgesetz) constitute the transposition into Austrian law of Directives 97/5/EC, 98/26/EC, 1999/93/EC and 2000/46/EC respectively.

### I.2 THE ROLE OF THE CENTRAL BANK

The Federal Act on the Oesterreichische Nationalbank (NBG) confers a variety of rights

and duties on the OeNB. The most important provisions related to payment systems are as follows:

The OeNB:

- is responsible for payment systems oversight and is empowered to conduct system inspections (Article 44a NBG; see below);
- may provide facilities to ensure efficient and sound clearing and payment systems within the EU and with other countries (Article 50); and
- may, in line with its duties as a member of the ESCB, collect, process and submit data (Article 44).

#### I.2.1 OVERSIGHT AND REGULATORY COMPETENCE

Since April 2002 the OeNB has fulfilled all of the requirements defined for national payment systems oversight authorities within the Eurosystem. The OeNB's interpretation of its mandate under Austrian law, as well as the implementation measures taken, are intended to fulfil both Austrian and European requirements. The OeNB's payment oversight activities are based on Articles 44a and 82a NBG. In addition to defining the OeNB's legal mandate to review system stability, Article 44a NBG specifies the OeNB's authority to issue regulations, perform inspections (including the assessment of legal, financial, technical and organisational system security) and impose sanctions. This article also defines the mechanisms necessary to avert conflicts of interest within the OeNB. Article 82a NBG governs the sanctions which the OeNB can impose on organisations which fail to fulfil the disclosure and reporting requirements set forth in Article 44a NBG.

Article 44a, paragraph 4 NBG defines a payment system which is subject to oversight as "any system in accordance with Article 2 of the Settlement Finality Act, as well as any

<sup>1</sup> In the official name of both laws, "1955" indicates the year of re-announcement of pre-war legislation.

commercial framework for the electronic transfer of funds among at least three participants”. Oversight activities are primarily aimed at operators (Article 44a, paragraph 5 NBG: “A payment systems operator...shall be deemed to be any person or entity engaged in commercial activities and assuming, for the purpose of making direct or indirect profits, the primary responsibility for the design of the payment system, its structures and processes, as well as for its operational soundness and technical safety”), as well as at participants in cases of relevance (Article 44a, paragraph 6 NBG: “Participants in a payment system shall be deemed to be any person or entity engaged in commercial activities and cooperating, for the purpose of making direct or indirect profits, in the transfer of funds within, from or to a payment system”).

#### **1.2.2 PROVISION OF BANKNOTES AND COINS**

Banknotes and coins are provided to the Austrian business community and consumers through the OeNB’s Vienna headquarters and its branches located in three provincial capitals (Graz, Innsbruck and Linz). Banknotes are produced by the Oesterreichische Banknoten und Sicherheitsdruck GmbH (OeBS), a full subsidiary of the OeNB. Distribution is carried out by another subsidiary, Geldservice Austria (GSA), which is a cash services company that provides a wide range of cash services in various areas (banks and retail businesses, euro and foreign currencies, banknotes and coins) and ensures that the currency in circulation is of high quality. Coins are struck by the Austrian mint, Münze Österreich AG, which is also wholly owned by the OeNB.

#### **1.2.3 OPERATIONAL ROLE OF THE OENB**

As stated above, the OeNB’s operational role in the payments sector focuses primarily on the settlement of interbank payments (via ARTIS; see Section 3.1 below). The accounts which the OeNB holds for Austrian banks are used for money market transactions, the fulfilment of minimum reserve requirements and the provision of cash; moreover, they are used in

particular for the settlement of bilateral clearing positions between banks. Since November 2003 the OeNB has also provided commercial banks with access to the EBA’s STEP2 service. With the exception of two major Austrian banks which participate directly in the EBA’s STEP2 system, the Austrian banking community makes wide use of this facility for cross-border retail payments. In addition, since July 2007, the OeNB offers a clearing infrastructure for domestic payments (STEP.AT). Indeed, it would be possible for Austrian banks to send domestic payments via the OeNB to STEP2. However, this option is hardly used owing to the fact that Austrian interbank transactions are currently exchanged in EDIFACT format which cannot be processed in STEP2. In order to attract a reasonable market share STEP.AT processes legacy EDIFACT formats besides common SWIFT MT standards and the new SEPA formats.

#### **1.2.4 COOPERATION WITH OTHER INSTITUTIONS**

Apart from the ongoing cooperation within the framework of the ESCB, the OeNB is represented in numerous EU bodies, the IMF, the BIS and the OECD. The OeNB has traditionally attached great importance to transferring knowledge and practical know-how to central bank staff from central and eastern European economies and from the former Soviet Union. To this end, it organises technical cooperation projects and thus supports these countries on their way towards becoming market-oriented economies. Many of the related activities are organised in cooperation with the Joint Vienna Institute (JVI).

At the national level, Austrian banks and the OeNB founded STUZZA as a cooperation and project platform in 1991. Nowadays, one of the most prominent tasks of STUZZA is to run the Austrian Payments Council (APC), which was established in 2005 to mirror the SEPA process in Austria. Thus, corresponding to the tasks of the EPC (European Payments Council), APC working groups for credit transfers, direct debits and cards were set up.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

#### 1.3.1 THE RESEARCH ASSOCIATION FOR PAYMENT COOPERATION

The Research Association for Payment Cooperation, a private limited company known by its German acronym STUZZA, was established in 1991 as a common forum for improving the Austrian payment system's efficiency. STUZZA is owned by the OeNB and large commercial banks and thus brings together the major players in the payment industry and also, indirectly, all sectors of the Austrian banking system.

The major task of STUZZA is to work out efficient – and thus cost-effective – operational sequences in the organisation of payment transactions, and to reach agreement on common standards. However, it is not authorised to define binding rules (as the implementation of proposed new measures requires the consent of all sectors); nor does it have an executive function, as it does not provide any payment services.

Major projects have so far covered cash logistics, electronic signatures, mobile banking, large-value payment systems (including the standardisation of national RTGS systems), the implementation of a multibank standard for electronic banking and the development of eps (e-payment standard), which is the standard interface for online payment systems of Austrian banks.

Since 2005 STUZZA has also been running the Austrian Payments Council (APC), which coordinates all SEPA activities of Austrian banks.

#### 1.3.2 EUROPAY AUSTRIA

In 1993 Austrian credit institutions – in their capacity as shareholders – decided to merge the Eurocard/MasterCard debit card POS and ATM activities of Eurocard Austria and GABE (Geldausgabeautomaten-Service GmbH) into Europay Austria Zahlungssysteme GmbH.

Today, Europay Austria deals with all strategic and marketing issues relating to Eurocard/MasterCard, EFTPOS and ATMs (Maestro), and the Austrian e-purse scheme QUICK.

#### 1.3.3 THE AUSTRIAN FEDERAL ECONOMIC CHAMBER AND PRESSURE GROUPS

Austrian banks' economic interests are represented by the following bodies: the Austrian Federal Economic Chamber (Wirtschaftskammer Österreich), the Austrian Bankers' Association (Verband der österreichischen Banken und Bankiers), the Association of Raiffeisen Credit Cooperatives (Fachverband der Kreditgenossenschaften nach dem System Raiffeisen), the Federal Association of Austrian Savings Banks (Österreichische Sparkassenverband), the Federation of Austrian Cooperatives (Österreichischer Genossenschaftsverband) and the Federation of Austrian State Mortgage Banks (Verband der österreichischen Landes-Hypothekenbanken). Consumers' interests are expressed primarily through the Austrian Federal Chamber of Labour (Bundeskammer für Arbeiter und Angestellte) and the Association for Consumer Information (Verein für Konsumenteninformation).

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Cash payments still play a very dominant role in day-to-day transactions. Although the market share of electronic payment systems such as debit cards and electronic purses is rapidly increasing, the total amount of cash in the market is also increasing.

Banknotes are supplied mainly through the approximately 8,000 ATMs (called Bankomat terminals in Austria) based on the Maestro system run by First Data Austria.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Credit transfers from one account to another have become increasingly paperless. Bank-to-bank routing has already been completely electronic for several years. While the total volume of credit transfers increased from 466 million in 1999 to 933 million in 2005, paper-based credit transfers decreased from 238 million in 1999 to 173 million in 2005. The total value of credit transfers grew from €1,082 billion in 1999 to €2,813 billion in 2005, while that of paper-based credit transfers decreased from €332 billion in 1999 to €322 billion in 2005.

### 2.2.2 DIRECT DEBITS

There are three Austrian direct debit systems: Maestro/POS, EasyPay and paybox. The vast majority of direct debit transactions are processed by Maestro/POS (98%).

The number of direct debit transactions increased from 237 million in 1999 to 668 million in 2005, and their value increased from €98 billion in 1999 to €256 billion in 2005.

### 2.2.3 INTERNET/MOBILE PHONE BANKING

Customer orders are increasingly shifting away from paper-based orders to internet-based or mobile phone-based transactions. However, reliable data on this development have not as yet become available.

### 2.2.4 PAYMENT CARDS

#### *Debit cards*

Debit cards are widely used (6.9 million cards in circulation in 2005) and are being accepted by an increasing number of merchants. The degree of market penetration of Maestro, the leading system in Austria, is fairly high (around 83,000 POS terminals in 2005).

#### *ATMs*

Customers can obtain cash from approximately 8,000 ATMs using different kinds of card

(i.e. the MaestroBankomat card or various credit cards) in combination with a PIN. The Austrian ATM infrastructure is run by First Data Austria and the settlement of ATM transactions is effected by direct debit.

#### *Credit cards*

In the field of credit cards, all major international players have established systems in Austria. In 2005 the total number of cards issued in the market (1.1 million) and the number of transactions (28.5 million) was rather small, while, as in all countries with highly developed giro systems, the average amount paid was relatively high. The value of transactions was €3 billion in 2005. This indicates that credit cards still do not play a significant role in everyday life, being used instead for special purchases.

#### *Prepaid cards*

The use of prepaid cards is increasing steadily. Apart from QUICK, the dominant e-purse system of Europay Austria (21.8 million transactions in 2005, with a total value of €133.8 million), the Austrian prepaid cards market is constantly being stimulated by new products (see below).

### 2.2.5 CHEQUES

Since payment with eurocheques has been abolished, cheques no longer have any practical importance in Austria.

### 2.2.6 E-MONEY

There are three e-money systems in Austria: QUICK, Maestro Traveller and paysafecard. In 2005 7.3 million e-money instruments were in circulation. QUICK accounted for 98% of these e-money instruments. Payment orders can be placed at 97,600 terminals.

## 2.3 RECENT DEVELOPMENTS

In 2005 Europay Austria and Visa launched new prepaid products in Austria, i.e. Maestro Traveller and Visa Electron Prepaid. These prepaid cards do not require the user to have a bank account or a permanent bank affiliation.

Users preload a credit amount by means of a cash payment or a bank transfer and can use them thereafter like a debit card for cash withdrawals and for purchases at POS networks. The card can be reloaded virtually.

Since the user's credit is stored not on the card, but on a central server, and because transactions are secured by a PIN, the user can block the card in the case of loss and crediting of the remaining balance can be initiated.

At the end of 2003 and in the second quarter of 2004 respectively Visa Austria and Europay Austria introduced their secure electronic transaction (SET) successors – “Verified by Visa” and “MasterCard SecureCode”. In addition, Maestro SecureCode, which allows the use of the Maestro debit card for online payments, was launched in November 2005.

For internet payments, traditional payment systems with country-specific features still dominate also in Austria. Based on online banking applications, the major Austrian banks decided to use eps as their common technical interface. In 2005 Austrian online shopping transactions were mainly settled via credit transfers (49.5%), followed by credit cards (28.2%) and cash on delivery (12.4%).

Cashless transactions using mobile phones are available via a system called paybox, which is owned by mobilkom austria GmbH & Co KG (83.3%) and ONE GmbH (16.7%), or via a national standardised payment interface for m-payments called M-Commerce Interface Austria (MIA), which is supported by the Austrian mobile phone operators T-Mobile Austria, One, tele.ring and 3.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

There is currently no large-value payment system (besides the Austrian TARGET component ARTIS) or national clearing house operating in Austria. Retail payments are carried out directly between credit institutions, which maintain approximately 8,000 account relationships for these purposes. However, as of mid-2007 the OeNB intends to launch a multilateral clearing service (STEP.AT) offering credit institutions an alternative to the correspondent banking relationships.

#### 3.2 THE AUSTRIAN REAL-TIME INTERBANK SETTLEMENT SYSTEM

The Austrian Real-Time Interbank Settlement (ARTIS) system was launched in July 1997. It was adapted to meet the requirements of TARGET, successfully beginning operations as the Austrian component of TARGET on 1 January 1999.

Originally, communication within ARTIS was based on the existing electronic banking communication (EBK) system, which had been in use since 1989. When ARTIS began operating in 1999, SWIFT and direct access (ARTIS Online PC) were added as options to access ARTIS. EBK ceased to operate in September 2003. Currently, communication within ARTIS relies exclusively on SWIFT. In order to allow participants to have flexible access to system and liquidity information, the “e-Konto” application was implemented in August 2002. The information can be accessed by ARTIS participants either using normal internet with server-based security certificates or via SWIFTNet browse and SWIFTNet interact. e-Konto may also be used to submit payment orders to ARTIS using an appropriate electronic signature.

##### 3.2.1 OPERATING RULES

ARTIS is governed by the published set of terms and conditions applicable to it.



### 3.2.2 PARTICIPATION IN THE SYSTEM

Participation in ARTIS is permitted under the conditions stipulated in the TARGET Guideline and the domestic AGB of ARTIS.

In principle, banks licensed in Austria and banks based in the European Economic Area (EEA) (as remote access participants) are qualified to participate provided that they meet the access criteria.

Banks may also take part in ARTIS as indirect participants, i.e. they may assign the authority to operate their account to another bank. Throughout the entire communication process, the network access point of the authorised institution is used.

### 3.2.3 TYPES OF TRANSACTION HANDLED

In principle, the following types of payment may be made via ARTIS:

- OeNB payments (money market operations, cash transactions, etc.);
- payments to other large-value systems;
- interbank payments arising from money market and foreign exchange transactions;
- interbank payments for customers if same-day settlement is required; and
- payments of very large value.

In addition, there are no restrictions concerning the type or size of payment which can be submitted to ARTIS.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

ARTIS has the same time schedule as TARGET.

It has the following procedures and time schedules, fixed in accordance with TARGET requirements:

- Acceptance of payment orders from 6.30 a.m. CET

From this time, the RTGS participant may transmit payment orders to ARTIS. However, orders are not processed until settlement starts.

- Start of settlement (7 a.m. CET)

When settlement starts, the payment orders are processed. Moreover, all information functions (enquiries) are available to the participants.

- Cut-off 1 (5 p.m. CET)

This marks the deadline for participants to close their accounts for customer orders. From this time, only national and cross-border interbank payment orders are admitted.

- Cut-off 2 (6 p.m. CET)

From this time, RTGS participants can no longer initiate transactions on their accounts.

- Cut-off 3 (at 6.30/7 p.m. CET)

Between cut-off 2 and cut-off 3, payment orders may still be transferred from the OeNB's internal systems to ARTIS. A negative account balance at cut-off 2 sets in motion the overnight overdraft procedure (pledge of securities to the OeNB to cover the overdraft).

- End of settlement

At cut-off 3, all unsettled payment orders in the waiting queue are returned to the participants. There is no more account activity.

- End of operation

This marks the closure of RTGS. The OeNB sends account statements to the participants.

ARTIS consists of two components: communication (transmission of messages) and payment order management/account management.

In the “payment order management/account management” component, the orders are processed (queue management, posting and relevant information functions, management of intraday credits) and posted to the participants’ giro accounts at the OeNB.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

ARTIS is a system of the highest integrity with various means of safeguarding the availability of the system and the correct execution of payment orders. It is designed to make system failure highly improbable.

All connections in the network are doubled, so there is a backup for every single line within the system. Moreover, contingency measures are implemented as required by the ECB.

If there is a break in the connection between the participant and ARTIS (e.g. owing to problems on the part of the participant, line problems or network problems), it is possible for participants to place their payment orders conventionally, i.e. by telephone or fax.

The RTGS application is implemented and operated on the system platform of the OeNB. This provides an optimum solution for two essential elements of the system: the connection with OeNB account management and the OeNB securities system, and the connection with the Interlinking system (i.e. TARGET).

The originating institution must hold an account with the OeNB. Orders are accepted for same-day processing or future value. Using ARTIS, the participant is offered several service functions. Participants are able to order credit transfers, make direct debits, assign priorities to their orders, apply for intraday credit, and cancel or change the priority of payment orders not yet executed. Moreover, participants may check their own account with regard to balances, account entries, the intraday credit line and recourse to it, and queued orders.

Payment orders are only executed on a covered basis and after execution they are posted

immediately and irrevocably to OeNB accounts. The system is characterised by the highest security standards and maximum transparency.

In order to automatically process payments, the payment order or request message must follow certain field specifications, which are somewhat more restricted than under the usual SWIFT rules.

Payment orders can also be placed by telephone or fax. These procedures are compliant with the four-eye principle, using an individual test key for each transaction. Thus, no subsequent paper document is required.

### 3.2.6 SETTLEMENT PROCEDURES

All incoming payment orders are put in the queue of the account to be debited and are processed in accordance with the FIFO principle for each category of priority. If there is no other payment in the queue and the account has sufficient cover at the moment at which a payment order comes in, the payment order is settled and posted immediately.

The originator has the possibility of assigning up to three priorities to each payment order. They can be classified as “urgent”, “standard” or “low” priority. All orders entered by the OeNB will have higher priority. Payment orders in the queue are processed in order of priority and in accordance with the FIFO principle. Payment orders in the queue may be cancelled or changed by the originator.

Only formally correct messages are accepted. A message will be considered formally correct if the account numbers of the originator/recipient are valid, if the originator is authorised to carry out the transaction on the account to be debited and if the field specifications are met. If a message is formally defective, it is rejected by the system and an error message is issued.

Payments which have not been executed by the end of the day will be cancelled and regarded as void. The originator of the payment order is

notified, and there is no automatic execution of such cancelled payments on the following day.

### 3.2.7 CREDIT AND LIQUIDITY RISK

The OeNB does not take any risk on failing payments, since payments are only executed if the current account has sufficient cover or if the participant is within its overdraft limit.

If a participant suffers a liquidity shortage, intraday credit up to the required amount is granted to the participant on request, provided that eligible collateral is provided on the security deposit account. Participants' limit for intraday credit is set by the value of the collateral predeposited at the OeNB. The value of the collateral is calculated on the basis of the publication entitled "The implementation of monetary policy in the euro area – General documentation on Eurosystem monetary policy instruments and procedures".

The participant is notified, by electronic means, as to whether an overdraft has been granted or refused, with a positive response immediately initiating the processing of payments in the queue of the account concerned. The intraday credit granted is valid until the end of the day.

### 3.2.8 PRICING

Generally, the ARTIS fee consists of a handling and a booking fee. The handling fee applies to payments transmitted in non-electronic form.

With regard to the booking fee, the participant can choose between two options. Option 1 is to pay €0.50 per transaction, while option 2 provides for the payment of a fixed amount of €100 per month plus a transaction fee of €0.25.

The TARGET fee structure applies to Interlinking payments.

The provision of intraday credit is free of charge. However, the Eurosystem's marginal lending rate is charged in the event that intraday credit spills over into overnight credit.

### 3.2.9 STATISTICAL DATA

In 2005 the average daily volume of ARTIS transactions was 15,417, with an average daily value of €40.15 billion.

## 3.3 THE LARGE-VALUE PAYMENT SYSTEM

ARTIS is the only large-value payment system operating in Austria.

## 3.4 THE RETAIL PAYMENT SYSTEM

The bulk of retail payments in Austria are processed on a bilateral basis between credit institutions.

In line with the structure of the Austrian banking sector, payment transactions are effected through the OeNB, major Austrian banks or banks organised in multi-tier sectors with central institutions (savings banks, rural credit cooperatives (Raiffeisen) and industrial credit cooperatives (Volksbanken)).

Inter-sectoral payments are currently carried out through bilateral accounts or holdings with third-party banks. In the multi-tier sectors, the central institutions are in charge of intra-sectoral and inter-sectoral liquidity equalisation. Banks not belonging to a multi-tier sector maintain bilateral settlement accounts. Usually, the larger institution acts as the account keeper, while the smaller institution keeps verification records. The accounts are conducted as creditor accounts, i.e. they carry interbank deposits for payments and liquidity management. The above-mentioned STEP.AT service of the OeNB, which is due to go live in mid-2007, will offer multilateral clearing and will therefore be an alternative to the existing correspondent banking procedure.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

In Austria, organised trading on the cash and derivatives markets takes place at the Vienna

Stock Exchange (Wiener Börse), Austria's only stock exchange.

#### 4.1.1 VIENNA STOCK EXCHANGE – CASH TRADING

##### 4.1.1.1 Recent developments and ownership structure

The Vienna Stock Exchange was founded in 1771, making it one of the oldest stock exchanges in the world. In December 1997 the former Vienna Stock Exchange and ÖTOB AG (the Austrian Futures and Options Exchange) were merged to form Wiener Börse AG. Since the amendment of the Stock Exchange Act (Börsegesetz; BörseG) in 1998, Wiener Börse AG has been an exchange-operating company organised under private law. It was granted a licence to operate and manage the Vienna Stock Exchange by way of an official notice of 3 April 1998.

In June 1999 the Republic of Austria sold its 50% stake in Wiener Börse AG to 30 listed companies. The new ownership structure now includes major Austrian banks and listed companies.

The creation of the new Vienna Stock Exchange was a major step forward in establishing Vienna as an independent market for Austrian and central and eastern European securities and their corresponding derivative instruments. Compared with other international stock exchanges, the Vienna Stock Exchange is relatively small. However, the introduction of international capital market standards, a wide range of listed companies and a link-up with the German Xetra electronic trading system have made Vienna attractive to potential international investors.

In August 2004 CCP.Austria (CCP.A), the central counterparty for all exchange-traded transactions, was founded. CCP.A is owned in equal shares by the Vienna Stock Exchange and by the Oesterreichische Kontrollbank (OeKB). CCP.A functions as a central counterparty (as buyer to the seller and vice versa), guarantees all transactions on the cash market, as well as

on the derivatives market, and provides other clearing and clearing-related services for all exchange-tradable products.

Apart from providing an exchange for the capital market, Wiener Börse AG also acts as a consultant and information provider for the financial sector. Today, Wiener Börse is a modern and technologically highly advanced exchange.

##### 4.1.1.2 The general legal framework

In Austria, exchanges are regulated by the Stock Exchange Act of 1989, as amended (most recently in 2005). All relevant EC directives have been incorporated into the Stock Exchange Act. Furthermore, the special terms and conditions of business of the Vienna Stock Exchange govern its function as a securities exchange.

The 1989 Stock Exchange Act fundamentally reformed the organisation of the stock market and stock exchange supervision. It also introduced new standards for the admission of securities and more detailed and precise duties of disclosure (listing particulars and reports) and, moreover, tightened regulations to protect investors, bringing them into line with the contents of EC directives (requirements for the admission of securities to listing on the stock exchange, trading rules, supervision, regulatory standards applying to issuers and dealers, and insider dealing provisions). The 1993 amendment to the Stock Exchange Act made the misuse of insider information a criminal offence and required market participants to take effective steps to prevent insider trading.

Further relevant legislation includes the Capital Markets Act (Kapitalmarktgesetz), which abolished the formal approval procedures for new issues by the Federal Ministry of Finance and introduced comprehensive disclosure standards for publicly offered issues to protect investors. In January 1999 the Takeover Act (Übernahmegesetz) entered into force and an independent Takeover Commission was established.

#### 4.1.1.3 Supervision

On 1 April 2002 the Austrian Financial Market Authority assumed its powers and responsibilities under the Financial Market Authority Act (Finanzmarktaufsichtsgesetz). All supervisory tasks and resources were transferred from the Federal Ministry of Finance (banking, insurance and pension funds) and the Austrian Securities Authority (Bundes-Wertpapieraufsicht) (securities supervision) to the new supervisory body. The reform has established the FMA as an institution under public law, and its independence is secured by constitutional provision. The FMA is now the single statutory supervisory body directly responsible for banking, insurance and pension funds and securities and stock exchange supervision. (Note that the OeNB, in its oversight capacity as stipulated in Article 44a, paragraph 4 NBG, is responsible for the oversight of securities clearing and settlement systems if the respective system is designated under the Austrian Settlement Finality Act.)

#### 4.1.1.4 Membership

In order to trade on the cash and derivatives markets of the Vienna Stock Exchange, an institution must become a member of the Vienna Stock Exchange and must have the required technical and human resources. The August 1999 amendment of the Stock Exchange Act opened up membership to credit institutions, investment firms and local firms domiciled in EEA member countries or third countries.

A prerequisite for companies that wish to become members of the Vienna Stock Exchange is confirmation that the applicant is authorised to carry on the business of providing investment services in its home country and has been admitted, as a member, to a regulated market there in addition to being supervised by the competent authority. In the case of companies domiciled in third countries, fulfilment of the admission requirements is examined individually.

#### 4.1.1.5 Market segmentation of the Vienna Stock Exchange

Since 21 November 2005 securities trading has taken place in five market segments: the equity market, the bond market, the derivatives market (for futures and options), structured products (e.g. certificates, exchange-traded funds and warrants) and other listings.

##### (i) Equity market

The Austrian equity market is broken down into a prime market and a standard market. The prime market is for stocks that are admitted to listing on the official market or semi-official market and meet special additional listing criteria. The standard market contains all other stocks listed on the official market or the semi-official market which are traded continuously or in one single auction per day.

##### (ii) Bond market

The bond market contains all bonds that have been allocated to the official market, the semi-official market or the third market. These are public sector bonds (government bonds, Federal Treasury certificates, Treasury notes, interest rate and government strips, etc.), corporate bonds, financial sector bonds (bank bonds or bonds issued by insurance companies, etc.) and performance-linked bonds.

##### (iii) Derivatives market

This market is divided into two segments: (i) the Austrian derivatives segment containing ATX and ATX Five futures and options; and (ii) the CEE derivatives segment containing all the CEE index products.

##### (iv) Structured products

This market segment is grouped into the three following segments: certificates, exchange-traded funds and warrants. These segments contain all certificates, investment funds and warrants that are admitted to listing on the official market, the semi-official market and the third market.

**(v) Other listings**

This segment contains all securities that cannot be allocated to any other segment. These securities include profit-sharing rights, which are admitted to listing on the official market, the semi-official market or the third market, as well as stocks and participation certificates admitted to the third market.

**4.1.1.6 Trading system**

On 5 October 1999, in cooperation with Deutsche Börse AG, the Xetra system was introduced on the Vienna Stock Exchange's cash and bond markets, replacing the OeKB's EQOS system. Xetra is a screen-based trading system for shares and other securities which should enable cross-border securities trading.

The Xetra system is a platform which provides all market participants with equal access to the market regardless of their location. In Vienna, services such as market control, trading surveillance, fee schedules and rules and regulations are provided by Wiener Börse AG.

Additional benefits offered by the central open order book include the concentration of liquidity and improved market transparency. Furthermore, additional liquidity is provided by special intermediaries (market-makers and specialists). Low transaction costs are guaranteed by the electronic matching of orders. A more customer-oriented set of order placement rules allows individualised order specifications in terms of validity and type of execution. The new trading system is linked to an integrated clearing and settlement system.

In general, orders of any size can be traded through Xetra, as the minimum trading lot is one unit. All orders are anonymous, meaning that trading participants cannot see who places an order or a quote in the order book. Xetra offers a wide range of options for individualised order specification.

**4.1.1.7 Trading procedure and types of trading**

The Xetra model for the Vienna Stock Exchange supports continuous trading with several auctions as well as trading with only one auction per trading session.

**Auction**

With auctions, the liquidity available in a security is concentrated at a specific point in time. An auction consists of the call phase, the price determination phase and the order book balancing phase. Prices are determined according to the principle of executing as many orders as possible. The auction price is the price at which the largest volume of orders can be executed and the fewest are left unfilled. The order book is open during the call phase. An indicative price or the best buy/sell limit is quoted in order to inform market participants of the market situation. An auction schedule is published to announce the times at which specific securities are to be called.

**Continuous trading**

Continuous trading starts after the end of the opening auction. In Xetra, each order is first entered into an electronic order book in which buy and sell orders are displayed opposite each other. In continuous trading, the order book is open, showing aggregate order volumes along with applicable limits. As soon as buy and sell orders are matched, they are executed automatically by the system. The advantage of continuous trading is that trades can be concluded at any time without the need to wait for an auction. The market-makers and specialists at the Vienna Stock Exchange guarantee that firm buy and sell quotes are entered into the system continuously, thus increasing the liquidity of the market.

**Routing orders via Xetra**

Xetra trading at the Vienna Stock Exchange is open only to institutions admitted to trading on the exchange, such as banks and their representatives (dealers). The dealer responsible enters all investors' orders in the electronic order book. The system automatically checks whether a matching order is available on the



opposite side of the order book and whether the order can be executed. If none match, the order remains in the order book.

#### **Exchange data provided by Wiener Börse AG**

Wiener Börse AG supplies real-time and historical data on prices, trading volumes and indices generated on the Vienna Stock Exchange in the Xetra and OM trading systems.

Furthermore, the installation of the “profit line” online database system enables the provision of information on bonds, investment funds and equities to facilitate access to yield curves, price and performance indices, company profiles, stock exchange indices, stock exchange performance and turnover.

#### **4.1.1.8 Risk management**

Specific risk management procedures (e.g. admission requirements, the daily marking to market of positions, collateral requirements) are in place and handled by CCP.A.

### **4.1.2 VIENNA STOCK EXCHANGE – DERIVATIVES TRADING**

#### **4.1.2.1 Legal basis and ownership structure**

In December 1997 the former Austrian Futures and Options Exchange was merged with the cash market of the Vienna Stock Exchange to form Wiener Börse AG. This part of the Vienna Stock Exchange is responsible for the trading and settlement of standardised derivatives business in Austria.

Generally, the rules of the BörseG and the BWG are applicable. Other relevant rules and regulations (specified by Wiener Börse AG and approved by the FMA) include the rules for trading and clearing, contract specifications, position limits, margin calculation, market-making, general clearing and fee structures as well as other agreements.

#### **4.1.2.3 Products traded**

The derivatives segment is grouped into standardised derivatives (futures and options) on equity-based underlyings such as single

stocks and financial indices. All contracts are cleared by CCP.A according to the different product specifications. These specifications naturally require different settlement procedures and handling. This allows for a flexible treatment of the different trading periods in these market segments.

The product range traded on the Vienna Stock Exchange’s derivatives market includes:

#### **(i) Austrian derivatives**

Futures and options on Austrian indices (ATX, ATX Five) and on Austrian stocks.

#### **(ii) CEE derivatives**

Futures and options on central and eastern European indices. The indices are calculated by the Vienna Stock Exchange in real time and have served as underlyings for futures and options trading on the Vienna Stock Exchange since spring 1997. The first indices have been published since July 1996. One of the main targets for the establishment of the CECE indices is the opportunity to trade different markets on a single trading platform in a single currency. All indices are calculated in local currency, euro and US dollars. With the exception of the index based on Russian stocks (RTX), where futures and options are traded in US dollars, all other derivative products are traded in euro.

Derivative products are tradable based on the following indices calculated by the Vienna Stock Exchange:

- Czech Traded Index (CTX), consisting of the major blue chips in the Czech Republic;
- Hungarian Traded Index (HTX), consisting of the major blue chips in Hungary;
- Polish Traded Index (PTX), consisting of the major blue chips in Poland;
- CECE Index (CECE), a benchmark index for the whole region consisting of CTX, HTX and PTX;

- New Europe Blue Chip Index (NTX), a benchmark for the whole region including Austrian stocks;
- Russian Traded Index (RTX), consisting of the major blue chips in Russia; and
- Russian Depository Index (RDX), consisting of depository receipts of Russian companies.

#### 4.1.2.4 Trading system

All Austrian and CEE derivatives are traded through the fully electronic trading system OMex. Each derivatives series is assigned a separate system code that contains the most important characteristics of the derivative. Orders for futures and options can be specified according to position (long, short), option series (underlying), exercise price, option type (call or put), expiry date, price limit and number of contracts.

The various types of order can be differentiated on the basis of their composition (and size), the prices quoted and their treatment in the order book. On the basis of the price quoted, a distinction is made between limit orders and market orders. Market orders must be specified on the basis of their execution type (fill or kill, immediate or cancel). Limit orders can also be specified on the basis of the time of validity (rest-of-day, good-till-expiration, good-till-date).

## 4.2 CLEARING

As mentioned, CCP.A was founded on 2 August 2004 by the executive directors of

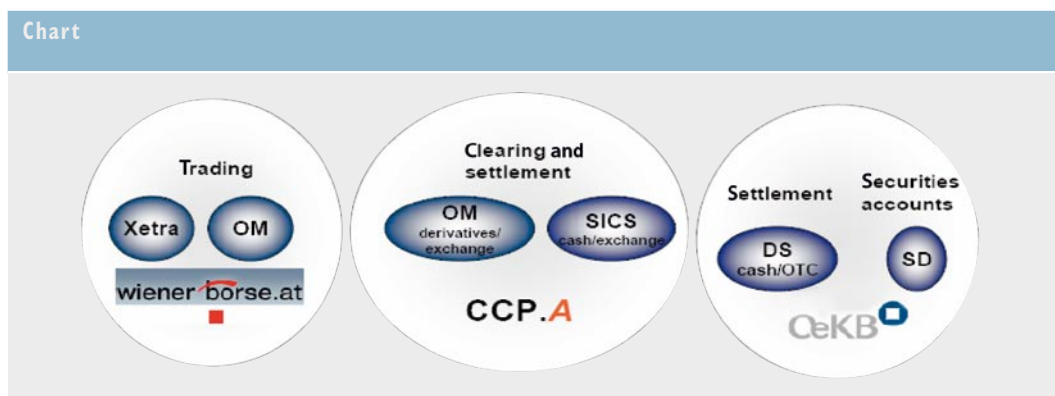
Wiener Börse and the OeKB. CCP.A launched its operations on 31 January 2005.

Up to 28 January 2005 the settlement and clearing services on the cash market were provided by the OeKB within the framework of the clearing and settlement system of Wiener Börse, whereas for the derivatives market settlement and clearing services were provided by the Wiener Börse Clearing and Services Department.

Wiener Börse has entrusted CCP.A with acting as clearing agency pursuant to Article 26, paragraph 3 BörseG and ensures the secure and reliable clearing and settlement of eligible exchange transactions.

CCP.A now acts as a central counterparty for all trades executed on Wiener Börse (cash and derivatives markets). CCP.A is responsible for clearing and settlement on all five market segments of Wiener Börse.

The clearing of executed trades is the process of sending, netting and recording payments and securities instructions for the purpose of calculating the final positions and sending them to the clearing bank. The OeKB has been entrusted with the tasks of the clearing bank. The clearing bank is responsible for the settlement of instructions. The chart below shows the relationship between the companies.



#### 4.2.1 CLEARING OF THE CASH MARKET

On the cash market, CCP.A settles and clears all exchange transactions concluded in trading in CCP-eligible securities on Wiener Börse. In its function as the central counterparty, it assumes the risks of non-performance and default for all trades. Settlement is effected entirely electronically through the reliable SICS (Securities Information Clearing and Settlement) system.

#### 4.2.2. CLEARING OF THE DERIVATIVES MARKET

Futures and options transactions concluded on Wiener Börse are settled in the clearing system OM Secur. CCP.A, in its function as a neutral clearing house, guarantees the performance of derivatives transactions and requires clearing members to deposit the required margins for all positions.

### 4.3 SETTLEMENT

#### 4.3.1 SETTLEMENT OF OTC TRANSACTIONS

##### 4.3.1.1 The OeKB as a central securities depository

In 1872 the Wiener Giro- und Cassenverein was established as the first institution in the world to offer CSD services. In 1965 the OeKB founded today's CSD, which replaced the Giro- und Cassenverein.

The OeKB is a specialised bank and acts as a financial and information service provider for the export industry and the capital market. It is a joint stock company (Aktiengesellschaft) under Austrian law; its shareholders are mainly domestic commercial banks. The OeKB is a private sector entity and is organised on a for-profit basis.

By way of a decree dated 9 April 1965, the Federal Ministry of Finance, together with the Federal Ministry of Justice, granted the OeKB the function of Austrian CSD. The basis for the securities deposit business is the Securities Deposits Act (Depotgesetz; DepG).

Under the DepG of 1969, as amended, all securities are held in collective safe custody, which enables the depository to hold the securities of different owners in collective safe custody without the need to segregate the securities and put them into separate safe custody for each owner. All holders of a certain category of securities are co-owners in relation to their holdings. The CSD provides a broad range of custody and settlement services.

The rights and obligations pertaining to the CSD are regulated by the DepG and the CSD's general terms and conditions.

##### 4.3.1.2 Relevant regulations

Austria does not have a specific law which regulates securities transactions in a comprehensive way. Instead, various laws provide the relevant legal basis. The following legal texts contain provisions on securities trading and settlement:

- BWG 1993: obligation to obtain a licence for securities trading; securities and custody business is entrusted to banks exclusively.
- DepG: provisions regarding the custody of securities and the safeguarding of the owner's rights.
- Regulation issued by the Federal Minister for Justice: designation of the OeKB as the CSD.
- General terms and conditions of the CSD.

Following an amendment of Austrian insolvency laws in August 1997, the "zero-hour" rule was repealed and the settlement of securities transfers is now final. The Settlement Finality Directive was implemented in Austrian law in July 1999.

##### 4.3.1.3 Supervision

The CSD is a department of the OeKB, a bank which is subject to Austrian banking regulations. Its banking licence was granted by the Federal Ministry of Finance. The OeKB is supervised

by the Financial Market Authority and audited by an independent accountant. Furthermore, the OeNB is responsible for payment systems oversight, which also includes the oversight of SSSs. There is close cooperation and an exchange of information between the Financial Market Authority and the OeNB. With a view to sustained financial market stability, the OeNB has a vital interest in the smooth settlement of transactions.

#### 4.3.1.4 Participation in the system

A CSD securities account holder may be anyone as agreed with the CSD: credit institutions, recognised investment firms, members of domestic stock exchanges, official brokers on the securities exchange (Wiener Börse), foreign CSDs and securities clearing institutions. The CSD may also accept other legal or physical persons and partnerships as holders of securities accounts.

Applications to open securities accounts and cash accounts must be submitted in writing to the CSD. The application to open a securities account must be accompanied by the following documents in original form or photocopies thereof certified by a notary public:

- an official excerpt from the Companies Register or a comparable register;
- the most recent version of the articles of incorporation or of a comparable officially certified document;
- the annual report of the last business year; and
- a list of names and sample signatures of persons who are legally authorised to send instructions effecting transfers on the securities account (and cash accounts, if different).

The CSD is entitled to request further documents and information from the applicant and to make enquiries with the competent authorities if appropriate.

The CSD currently maintains links with the following CSDs for all types of securities: Clearstream Banking (Frankfurt, Luxembourg), Euroclear Netherlands (Amsterdam), SIS (Zurich), Euroclear Bank (Brussels), Euroclear France SA (Paris), Keler (Budapest) and Monte Titoli (Milan). The CSD plans to establish further links with other EU SSSs. Securities transactions via links are based on rules similar to those for domestic procedures.

#### 4.3.1.5 Types of transaction

The OeKB has developed a new OTC settlement system (DS.A), which has been operational since January 2006. The use and operation of DS.A is governed by the general terms and conditions of the CSD.

DS.A supports settlement of the following types of transaction:

Internal instructions for the delivery of securities to a different OeKB safekeeping account:

- IDF: free of payment
- IDVP: versus payment

Internal instructions for the receipt of securities from a different OeKB safekeeping account:

- IRF: free of payment
- IRVP: versus payment

External instructions for the delivery of securities which the OeKB holds with a foreign depository to a safekeeping account at this depository:

- EDF: free of payment
- EDVP: versus payment

Instructions for the receipt of securities which the OeKB holds with a foreign depository from a safekeeping account at this depository:

- ERF: free of payment
- ERVP: versus payment

To provide collateral for monetary policy operations, the Austrian CSD system is used for the transfer of securities from the securities accounts of counterparties to the OeNB's security account with the OeKB. The main task of the CSD is to ensure that the securities are predeposited on the OeNB's securities accounts with finality. All of these transactions are free-of-payment deliveries effected through book entries.

#### 4.3.1.6 Cash settlement

The cash settlements required in the course of securities administration are effected via the current accounts which each Austrian CSD participant must hold with the OeKB. Furthermore, CSD participants may hold cash accounts with the OeNB. The participants can decide whether the transaction is to be settled in commercial bank or central bank money. The OeKB has established a fully automated interface with the OeNB's Austrian TARGET component system, ARTIS. The direct link between the OeKB's DS.A and the Austrian RTGS system, ARTIS, has been operational since January 1999. The OeKB is able to provide intraday settlement of the cash leg in central bank money. Intraday DvP operations in central bank money are also possible with this link.

#### 4.3.1.7 Settlement procedures

CSD's operating hours are from 8 a.m. to 6 p.m. CET from Monday to Friday. The CSD has fully harmonised its operating hours with the TARGET operating hours (and with the OeNB's requirements for the Austrian RTGS system, ARTIS).

DS.A is a real-time OTC settlement system. It is open Monday to Friday from 7 a.m. to 7 p.m. CET. In addition to the real-time processing, there are eight batches for netting purposes. DvP transactions are settled between 7 a.m. and

4 p.m. CET. From 4 p.m. until 6 p.m. CET only FOP transactions are settled.

Communication in DS.A is effected either via SWIFT message exchange or by using the web-based online client.

DS.A differentiates between two instruction qualities:

- preadvice; and
- instruct.

For instruction types IRVP and IDVP, both the buyer and the seller must submit the corresponding instructions in DS.A. For instruction types IDF and IRF, the receiver of the securities can invoke matching by sending a counterparty instruction by means of a customer-defined parameter.

On the value date the CSD debits the seller's securities account and the buyer's cash account (if the transaction is versus payment) and credits the seller's cash account and the buyer's securities account (if the transaction is versus payment). The CSD will carry out instructions only if the party's securities and cash accounts show a sufficient balance. Securities and funds transfers are simultaneous. The timing of finality is the same for all types of securities and currency settled.

Customers can cancel their instructions unilaterally, as long as they have not been successfully matched. If they have already been matched but not finally settled, cancellation is possible if done for both instructions. In this case, both partners must cancel their own instructions.

A further service is provided by Custody Clearing Link Deutschland (CCLD), which offers the clearing and settlement of trades executed in Xetra Frankfurt on cash and safekeeping accounts with the OeKB.

#### 4.3.1.8 Risk management

DS.A is a mere execution system, i.e. it simply executes the orders without any interference.

The general terms and conditions of the CSD do not allow predeliveries or prefunding. Generally, settlement will only be performed if securities and cash are available on the accounts of the respective parties to a transaction (bilateral settlement). If a participant does not provide the required amount of cash or securities for whatever reason, the relevant transaction will be separated and postponed for settlement in the next batch. After 20 days transactions that cannot be settled are cancelled by the system.

#### 4.3.1.9 Operational reliability

The Austrian CSD operates with system support, auditing and backup systems. The OeKB has implemented a set of contingency handling procedures and a disaster recovery plan. Two EDP centres are available at different sites, equipped to allow resumption of full operations within approximately three hours, even in the event of a severe breakdown. The procedures developed by the OeKB/the CSD are audited and approved by the OeKB's internal audit unit. Furthermore, external audits are performed.

The SWIFT network is used for the message-based exchange of settlement information.

#### 4.3.2. SETTLEMENT OF EXCHANGE-TRADED TRANSACTIONS (CASH MARKET AND DERIVATIVES MARKET)

Because CCP.A itself does not have a banking licence, the OeKB acts as clearing bank and is responsible for the settlement of transactions, timely book entry and payment against delivery, as well as for the safekeeping of securities (with the exception of guarantees), banking processes and the valuation of clearing margins.

The AGB of the clearing bank apply unless they contradict the clearing rules and the Stock Exchange Act.

#### 4.3.2.1 Structure of participants

All clearing members must be members of Wiener Börse. The clearing rules define participating clearing members and non-participating clearing members.

*Direct clearing members (DCMs)* are authorised to settle and clear their own transactions, as well as agents' transactions. DCMs must hold own funds of at least €2,500,000. They are not authorised to settle and clear transactions of stock exchange members that do not participate in clearing (non-participating clearing members).

*General clearing members (GCMs)* are those clearing members that, in addition to their own transactions, agree to the clearing of transactions of stock exchange members that do not participate in the clearing system. GCMs must hold own funds of at least €5,000,000.

*Non-participating clearing members (NCMs)* are those stock exchange members that participate in the trading system, but not in the clearing system. NCMs must enter into a clearing agreement with a general clearing member and deposit clearing collateral with this general clearing member of at least the same amount that the clearing agency would ask the general clearing member to deposit for them.

Pursuant to the rules, both clearing agents and clearing banks are clearing facilities. They process the instructions of participating clearing members. Furthermore, they permit the safekeeping of clearing collateral with the exception of guarantees.

As operators of their own (decentralised) clearing systems, they are obliged to include any relevant instructions in their systems and to process them in order to ensure orderly clearing.

Clearing agents do not enter into the transactions of their clearing customers, nor do they assume any liability for delivery. Within the scope of



Article 2, paragraph 20 or Article 2, paragraph 31 BWG, only credit institutions from Zone A or recognised investment firms may act as clearing agents. Clearing agents must sign a clearing agent agreement.

Before starting clearing activities, all direct clearing members must enter into a standardised agreement with the clearing agency and must permit a credit review. They must also furnish the clearing agency with proof of the following:

- of the payment of the requested amount to the clearing fund;
- of the installation of the technical equipment appropriate for the intended category of clearing membership;
- of the availability of professionally trained staff;
- of instructions issued to set up the required automatic debit/credit facility, the required signing authorisations and the pledge declarations;
- of the availability of the required cash and securities accounts; and
- that they belong to one of the categories pursuant to Article 2 of the Financial Collateral Act (Finanzsicherheitengesetz).

#### 4.3.2.2 Types of transaction

CCP.A provides clearing services for all CCP-eligible Wiener Börse products in the above-mentioned market segments. All contracts are cleared in accordance with the particular product specifications. These specifications naturally require different systems, settlement procedures and handling.

#### 4.3.2.3 Clearing procedures

##### *Clearing system SICS on the cash market*

SICS records all trades of a clearing and settlement period. Usually, this period is one

trade day. Thus, only those balances that result from this netting are settled. This process helps to minimise the number of clearing and settlement transactions, and ensures efficient clearing up to international standards.

SICS optimises the clearing information provided to clearing members. This information is made available in a structured manner in the dialogue box (connection to SICS) directly after the settlement calculation process (which takes place almost in real time). Additionally, it is possible to receive the data via file transfer as mentioned in the data carrier description.

In March 2006 SICS Version 5.5 was successfully launched. This version includes the second booking run per settlement day and the netting of open balances.

Exchange transactions in CCP-eligible securities must be fulfilled on the third exchange trading day after the conclusion of the trade (settlement day is t+3).

In the event of default of delivery (default procedure), the clearing agency proceeds according to the following procedure:

1. Separation procedure.
2. Covering procedure.
3. Cash settlement procedure.
4. Covering procedure (buy-in).

During the separation procedure, a clearing member which is in default of delivery can arrange for the retroactive covering of the shortfalls or instruct the clearing house by written order to obtain cover for the shortfalls. The buy-in order (covering procedure) should be made as early as possible, by 2 p.m. CET on s+8 at the latest, in written form by fax or e-mail. CCP.A tries to obtain cover for the shortfalls either through direct contact with potential sellers or through information on the

website in the section “Auction for Covering Purchase”.

#### *Clearing system OM Secur on the derivatives market*

The OM Secur system in operation at CCP.A is a real-time clearing system which is fully integrated with the OM exchange system. The transaction transport mechanism enabling the integration is the OMnet network. OMnet is also the external network used by members to access the exchange and clearing house via the respective user devices. Information on accepted and matched trades is received over OMnet in real time on a transaction basis from the marketplace system.

The clearing system consists of several sub-systems, e.g. the SE system, which is the bookkeeping system of the derivatives market. All payment transactions within a market are booked on a daily basis in the SE sub-system. On the settlement day, a file with all relevant booking instructions is sent electronically to the custodian bank, which subsequently processes the booking instruction automatically.

The clearing procedures reflect the market structure of the clearing system, i.e. there are procedures for every market segment. The main operational phases at the Vienna Stock Exchange are those of reconciliation (8 a.m. to 8.30 a.m. CET), trading (9 a.m. to 5.30 p.m. CET; for CECE markets 9 a.m. to 5 p.m. CET), exercises (5.45 p.m. to 6 p.m. CET; from 5.45 p.m. to 6.30 p.m. CET on the expiration day) and after-business functions.

The first operation on an exchange day is the reconciliation of settlements and margins to make sure that the clearing results are consistent. As the instructions are sent automatically to the bookkeeping system too, the completeness and consistency of all settlement transactions can be continuously monitored.

During the day, the OM Secur system is used for maintenance of accounts, trade adjustments,

position keeping and exercise handling. The members are connected to OM Secur via special software (Back-office PC) which enables, for example, access to all relevant reports, real-time positioning, trade adjustments and exercise handling.

The after-business functions include batch procedures. All relevant clearing information is generated, margin requirements are calculated and the settlement function is performed. After all functions have been processed, the payment data are moved automatically to the SE, where payments and accounting are handled.

#### **4.3.2.4 Risk management**

The objectives of risk management are:

- to ensure the integrity and functionality of the market;
- to achieve a higher level of member protection; and
- to minimise risks by being the counterparty to every transaction (novation).

In order to ensure the fulfilment of all transactions, CCP.A applies modern risk management methods. The risk management includes credit quality assessment, clearing collateral and the clearing fund.

When calculating the collateral to be deposited, a clearing member’s default risk is assessed. Should a clearing member fall into default with its trades pursuant to Clearing Rules Articles 37 et seq. (with the exception of technical default), the default procedure and the realisation of collateral apply.

The risk management systems are fully integrated into the clearing systems.

#### **Margin calculation**

Stock exchange members who take part as participating clearing members in the clearing system of CCP.A must deposit collateral with the OeKB, as it is the clearing bank for securing

the clearing risk. The collateral requirements are calculated on the basis of the balance of open trades and risk factors (margin calculation).

The automatic monitoring ensures that the value of collateral deposited corresponds to the calculated clearing risk. Thus, CCP.A guarantees the complete coverage of the current clearing risk without tying up liquidity unnecessarily.

#### *Credit rating*

CCP.A evaluates the current economic and financial situation of each participating clearing member before and after joining the clearing system.

The credit quality of the clearing members is assessed on the basis of the annual reports and other information made available by them, and includes the calculation of standard financial ratios.

Based on these ratios, the clearing member is assigned to a clearing category ranging from 1 to 8. Category 1 comprises companies with the highest credit rating and category 8 is made up of the companies with the lowest credit rating.

Depending on the credit rating of the direct clearing member, the clearing collateral is increased by a risk premium.

#### *Clearing fund*

Each participating clearing member is obligated to deposit the clearing collateral and, in addition, to contribute the specified amount to the clearing fund maintained by CCP.A. The exact amount (€5 million for GCMs and €1 million for DCMs) is specified in the rules and regulations. The amount is reduced to €250,000 for GCMs and €50,000 for DCMs if the member clears and settles only exchange transactions in securities (cash market). The specified amount must be supplied to CCP.A in the form of a euro cash deposit or a bank guarantee, and serves exclusively to cover open liabilities in the event of default that cannot be covered fully by the party's own clearing

collateral or the amount contributed to the clearing fund by the defaulting party.

#### *Collateral*

The types of collateral accepted by CCP.A have been announced in the Official Bulletin of Wiener Börse.

The accepted instruments are (with effect from 1 January 2007):

- euro cash;
- bonds which meet the following criteria: single-list bond; admitted to trading at a recognised exchange within the euro area; quoted in euro, Austrian Schilling or Deutsche Mark; residual expiration time of at least one year; no own issues or issues of affiliated companies;
- securities which are admitted to the official market and the semi-official market of Wiener Börse and which are in the continuous trading segment; and
- bank guarantees.

The accepted currency is the euro.

Bonds are valued at 90% of their last value and stocks are valued at 50% of their last value.

#### *Realisation*

In the event of default, the collateral deposited to secure all remaining open liabilities is realised.

The collateral for the cash market is realised in the following order:

1. Cash collateral and all cash balances.
2. Securities deposited as collateral and securities.
3. Bank guarantees.
4. All contributions to the clearing fund.

In the event of default on the derivatives market, the clearing agency first realises the positions on the position accounts of the stock exchange member in order to cover open liabilities. The clearing agency then nets all open positions of the exchange member concerned against all of its other position accounts. In the event of GCM defaults, the following applies:

- The GCM's positions, and, if applicable, the positions of the indirect clearing member(s) causing the default, are netted.
  - If possible, positions are transferred to other general clearing members.
  - Positions are closed out on the third trading day after the default.
  - At the latest on the third exchange trading day after default, the clearing agency has the right to realise the collateral.
- the assessed direct links between the OeKB and Clearstream Banking (Frankfurt, Luxembourg), Euroclear Netherlands (Amsterdam), Euroclear Bank (Brussels), Euroclear France SA (Paris) and Monte Titoli (Milan); or
  - the correspondent central banking model (CCBM).

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE OESTERREICHISCHE NATIONAL BANK

The role of the OeNB in the context of the settlement of securities transactions is restricted to being a market participant and a user of the OeKB systems. With regard to monetary policy instruments, the OeNB uses a pooling system for collateralisation. The eligible counterparties place securities in a pool of assets (pre-depositing). In the case of a monetary policy transaction, a global blocking of collateral takes place (without earmarking for individual transactions or collateral). The pool is evaluated on a daily basis using marking-to-market procedures. Counterparties may substitute underlying assets on a daily basis.

Domestic securities are held in custody with the national CSD at the OeKB. Delivery of collateral can be performed via:

- the OeKB's DS.A, which is directly linked to the OeNB's in-house system;





# PORTUGAL

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## LIST OF ABBREVIATIONS

APB	Portuguese Banking Association – <i>Associação Portuguesa de Bancos</i>
BVLP	Lisbon and Oporto Stock Exchange – <i>Bolsa de Valores de Lisboa e Porto</i>
CCCAM	Central Mutual Agricultural Credit Bank – <i>Caixa Central de Crédito Agrícola Mútuo</i>
CISP	Interbank Coordinating Commission for Payment Systems – <i>Comissão de Coordenação Interbancária para os Sistemas de Pagamentos</i>
CMVM	Securities Market Commission – <i>Comissão do Mercado de Valores Mobiliários</i>
IGCP	Central Government Debt Management Office – <i>Instituto de Gestão do Crédito Público</i>
Interbolsa	Managing entity of securities settlement systems and centralised securities systems
LIST	Lisbon Trading System
MEDIP	Special Government Debt Securities Market – <i>Mercado Especial de Dívida Pública</i>
MIBEL	Iberian electricity market – <i>Mercado Ibérico de Electricidade</i>
MOI	Intervention operations market – <i>Mercado de Operações de Intervenção</i>
MMI	Interbank money market – <i>Mercado Monetário Interbancário</i>
MTS Portugal	Company managing the MEDIP trading system
Multibanco	Nationwide ATM and EFTPOS network
OEVTS	Primary dealers in Portuguese government securities – <i>Operadores especializados de valores do Tesouro</i>
OMIClear	Company acting as a clearing house and central counterparty for the MIBEL Derivatives Market – <i>Sociedade de Compensação de Mercados de Energia SA</i>
OMIP	Iberian Energy Market Operator/Portuguese Pole – <i>Operador do Mercado Ibérico de Energia/Pólo Português SA</i>
PEXSettle	Platform of the PEX non-regulated market
PMB	Multi-purpose prepaid card – <i>Porta-Moedas Multibanco</i>
SDD	Direct debit system – <i>Sistema de Débitos Directos</i>

SIBS	Interbank Services Company – <i>Sociedade Interbancária de Serviços SA</i>
SICOI	Interbank clearing system – <i>Sistema de Compensação Interbancária</i>
SICAM	Integrated mutual agricultural credit scheme – <i>Sistema Integrado de Crédito Agrícola Mútuo</i>
SITEME	Market electronic transfer system – <i>Sistema de Transferências Electrónicas de Mercado</i> (formerly SISTEM)
SLOD	Settlement System for Other Depositors – <i>Sistema de Liquidação de Outros Depositantes</i>
SPGT	Large-value real-time gross settlement system – <i>Sistema de Pagamentos de Grandes Transacções</i>
TEI	Electronic funds transfer system – <i>Transferências Electrónicas Interbancárias</i>
UNICRE	Interbank credit card organisation

## INTRODUCTION

Payment systems in Portugal have undergone considerable change in recent years. Extensive interbank cooperation has facilitated the swift development of modern retail systems based on the automated processing of payment instructions. In addition to systems that have been operating for a number of years, such as automated clearing systems for cheques and bills of exchange and an electronic funds transfer system (Transferências Electrónicas Interbancárias; TEI), a new direct debit system (Sistema de Débitos Directos; SDD) (see Section 3.3.4.3) was implemented in October 2000 and in October 2003 the Portuguese system for clearing cheques started to exchange electronic images of cheques instead of paper.

The Banco de Portugal, a legal entity under public law which, by law, is responsible for the regulation and oversight of payment systems, has lent its full support to the modernisation of the Portuguese payments industry. The large-value RTGS payment system (Sistema de Pagamentos de Grandes Transacções; SPGT) became fully operational on 30 September 1996. In preparation for Stage Three of EMU, the Banco de Portugal then worked on connecting the SPGT to the TARGET system.

In the 1990s the securities markets and settlement systems underwent significant change. In January 1999 the new integrated market electronic transfer system of the Banco de Portugal (Sistema de Transferências Electrónicas de Mercado; SITEME) (see Section 4.3.1) began executing money market operations. There have also been extensive developments regarding trading. In 1996 the derivatives market started operating and, in 1999, the options market was launched with a new trading system for futures and options (see Section 4.1.1.4). In 1999 the Lisbon and Oporto stock exchanges merged to form a single stock exchange, the Lisbon and Oporto Stock Exchange (Bolsa de Valores de Lisboa e Porto; BVLP) (see Section 4.1.1), operating the Lisbon Trading System (LIST). The BVLP joined the

Euronext group in 2002 and became Euronext Lisbon, operating the NSC trading system (see Section 4.1.1.3). Lastly, in 2000 a new company, MTS Portugal, began managing the electronic trading system for the Special Government Debt Securities Market (Mercado Especial de Dívida Pública; MEDIP) (see Section 4.1.2).

In 1997 the Banco de Portugal set up the Interbank Coordinating Commission for Payment Systems (Comissão de Coordenação Interbancária para os Sistemas de Pagamentos; CISP) for the purpose of promoting the development, standardisation and use of interbank payment instruments and payment systems (see Section 1.2.1).

## I INSTITUTIONAL ASPECTS

### I.1 GENERAL INSTITUTIONAL FRAMEWORK

The opening up of the banking sector to private investors in 1983 and the partial privatisation of state-owned banks initiated in 1989 provided a strong impetus towards diversification, modernisation and competition in the financial system. The prospect of the Single Market and the establishment of an increasing number of foreign banks in Portugal led to the expansion of new market sectors.

Since 1986 legislation has been passed with the aim of harmonising Portuguese law with that in force in the EU. It has focused, inter alia, on the following aspects: defining credit institutions; rules for granting and revoking licences to establish credit institutions; rules for the operation and supervision of credit institutions; solvency and liquidity ratios; and the promotion of competition.

The creation of the Single Market led to further changes driven by the need for harmonisation. These changes included the regulation of the various types of credit institution and financial company and their activities (Decree-Law 298/92) and the liberalisation of capital flows (Decree-Law 170/93).

The Securities Market Code of 10 April 1991 provided for the liberalisation and privatisation of stock exchange operations, while the Banco de Portugal continued to be the settlement agent in clearing and settlement through a single national system.

A new code was published on 13 November 1999. Its objectives included simplifying and modernising the previous code, transposing several European Community directives into Portuguese law and responding to the need for stock market integration and internationalisation.

Owing to the nature of their activity, credit institutions and financial companies are the

main providers of payment services. This activity is explicitly identified in regulations established by the government and by the central bank in its role as the monetary authority.

Decree-Law 298/92, which regulates credit institutions and financial companies, stipulates that credit institutions are institutions which carry on activity consisting in, inter alia, taking deposits or other repayable funds from the public and granting credit on their own account.

On 30 December 1994 a deposit guarantee fund was created in which all deposit-taking institutions participate – with the exception of the mutual agricultural credit institutions belonging to the integrated mutual agricultural credit scheme (Sistema Integrado de Crédito Agrícola Mútuo; SICAM), which have their own guarantee fund – with a view to ensuring the protection of smaller deposit holders and, ultimately, the stability of the financial system.

#### Financial intermediaries providing payment services

##### *Credit institutions*

Increased competition has led to the gradual repeal of the previous restrictive regulations governing the activity of commercial and investment banks.

At the end of 2005 the roll of registered credit institutions comprised 63 banks, four savings institutions and 119 mutual agricultural credit institutions (one of which, the Central Mutual Agricultural Credit Bank – Caixa Central de Crédito Agrícola Mútuo; CCCAM – is the coordinating body for most of the others).

The market share of the five major banking groups in terms of total assets was over 80% at the end of 2005. Caixa Geral de Depósitos is the largest Portuguese bank and is wholly owned by the state. At the end of 2005 there were 25 branches of foreign credit institutions

registered in Portugal, 24 of which were branches of EU-based groups.

The savings institutions are the financial arm of the mutual associations, and the focus of their activity is on collecting small savings.

At present, the CCCAM and all but six of the mutual agricultural credit institutions form SICAM, within which there is a shared responsibility system. The CCCAM has the authority to monitor compliance with the applicable prudential ratios and limits.

Moreover, the agricultural guarantee fund (the aim of which is to guarantee the reimbursement of deposits and the financial stability of the mutual agricultural credit institutions) is financed by the above-mentioned institutions, the CCCAM and the Banco de Portugal.

#### *The postal system*

The Portuguese postal system comprises over 981 offices throughout the country and participates in the payment system in two ways: first, as an agent of Caixa Económica Postal, which is part of Caixa Geral de Depósitos, it offers accounts and payment services; and, second, it also offers a specific system, distinct from the banking system, for making domestic and cross-border payments by means of postal money orders.

#### *Credit card companies*

Credit cards are regulated by Decree-Law 166/95 and Notice No 11/2001, which stipulate that only credit institutions or credit card companies are authorised to issue credit cards and to determine the related contractual clauses.

UNICRE, an interbank credit card organisation, was created in 1974 by six banks in order to issue and manage a common credit card linked to an international brand (Master Charge) and is presently owned by 20 shareholders. UNICRE's Unibanco card could be used in its single nationwide acquiring network, the Redunicre. Between 1979 and 1988 UNICRE

had the exclusive right to issue all domestic credit cards. In 1984 this right was extended to the representation of all foreign credit cards in Portugal with the integration of Visa operations, which had until then been managed by a commercial bank. The exclusive arrangement came to an end in May 1988, when a law was passed to liberalise credit card issuance, and in 1990 the liberalisation of the acquirer function allowed American Express to operate independently. The number of cards issued independently by credit institutions currently exceeds the number issued by UNICRE. The Redunicre network enables merchants to accept the following brands of domestic and international payment card: Visa, MasterCard, Visa Electron, Maestro, Diners Club, JCB and Tarjeta 6000.

## **1.2 THE ROLE OF THE CENTRAL BANK**

### **1.2.1 GENERAL RESPONSIBILITIES**

#### *Statutory responsibility*

The Banco de Portugal is part of the ESCB, which was officially established on 1 June 1998 and comprised the ECB and the NCBs of the then 15 EU Member States.

Pursuant to the Organic Law of the Banco de Portugal, endorsed by Decree-Law 5/98 of 31 January 1998, the Banco de Portugal provides for the stability of the domestic financial system by performing the function of lender of last resort, and is responsible for the supervision of credit institutions, financial companies and other bodies such as credit card issuing and acquiring companies, regional development companies and foreign exchange offices.

With regard to payment systems, Article 14 of the above-mentioned Organic Law states that it is incumbent on the Banco de Portugal to regulate, oversee and promote the smooth operation of payment systems within the scope of its participation in the ESCB.

Moreover, the Banco de Portugal pledged to implement and disseminate the policies

presented in the “Statement on the role of the Eurosystem in the field of payment systems oversight” published by the ECB on 21 June 2000 and to adopt the “Core Principles for Systemically Important Payment Systems” approved by the Committee on Payment and Settlement Systems (CPSS) of the G10 central bank governors and adopted by the Eurosystem in January 2001.

#### *Establishment of common rules*

The Banco de Portugal prepares regulations and issues instructions regarding the operation of interbank clearing and settlement systems and interbank markets. The existing rules relating to payment systems cover interbank transfers resulting from the automated clearing of cheques and other payment instruments, as well as large-value payments executed through the SPGT.

In 1997 the CISP was set up. The Commission’s objectives are: to coordinate the activities of interbank working groups, to define strategies for the development of retail payment systems, to promote interbank cooperation on new products, and to regulate and standardise payment systems. The Commission is composed of representatives from the Banco de Portugal, which chairs it, several commercial banks, the Interbank Services Company (Sociedade Interbancária de Serviços SA; SIBS) and the Portuguese Banking Association (Associação Portuguesa de Bancos; APB). More recently, the activities of the CISP have centred on the Single Euro Payments Area (SEPA) project.

#### *Supervision and audit*

In accordance with its Organic Law, the Banco de Portugal is responsible for monitoring money and foreign exchange markets within the scope of its participation in the Eurosystem. As supervisor, the central bank has the power to establish the rules of conduct to be followed by the entities under its supervision. In performing this function, the Banco de Portugal may take any measures deemed necessary to prevent or halt actions that contravene the regulations, including those related to payment systems.

#### **1.2.2 PAYMENT SYSTEMS OVERSIGHT**

The oversight function is formally assigned to the Banco de Portugal under Article 14 of its Organic Law, which states that “it shall be incumbent on the Banco de Portugal to regulate, oversee and promote the smooth operation of payment systems”.

Moreover, Article 117-A, Section 1, of the general legal framework for credit institutions and financial companies, approved by Decree-Law 298/92 of 31 December 1992, states that “the Banco de Portugal may subject to its supervision the entities that have as their purpose to carry on, or that actually carry on, activities especially relevant for the operation of the payment system, specifying the rules and duties applicable to them from among those envisaged in this Decree-Law for financial companies”

The oversight function is performed by monitoring payment systems, assessing their compliance with the Core Principles for Systemically Important Payment Systems, issuing regulations, exercising moral suasion and providing settlement services for banks or payment and clearing systems, as well as by playing a catalyst role in developing these systems and promoting coordination among the relevant parties through the CISP.

#### **1.2.3 OPERATIONAL ROLE**

The large-value RTGS system (SPGT) (see Section 3.2) is owned and operated by the Banco de Portugal. Retail payments are processed through the interbank clearing system (Sistema de Compensação Interbancária; SICOI) (see Section 3.3). Although the SICOI is owned by the central bank, its operational side is delegated to an interbank service provider, SIBS. In addition to these systems, the Banco de Portugal owns and operates the Settlement System for Other Depositors (Sistema de Liquidação de Outros Depositantes; SLOD) (see Section 3.2.2), which processes credit transfers between institutions not participating in the SPGT.

#### *Provision of settlement accounts*

All participants in the interbank clearing system, the interbank money market (Mercado Monetário Interbancário; MMI) and the large-value RTGS system – i.e. the Treasury, credit institutions and financial companies – must hold a single current account with the central bank for settlement purposes. The Banco de Portugal is also the settlement agent for stock exchange transactions.

The Banco de Portugal is not involved in retail activities, except for certain relatively small transfers received from abroad by beneficiaries resident in Portugal (mainly embassies). Therefore, it does not hold accounts for non-financial institutions.

Transactions on the MMI and on the intervention operations market (Mercado de Operações de Intervenção; MOI) are transmitted via the SITEME, which connects the Banco de Portugal with each interbank market participant and is operated by the central bank's Market Operations Department.

#### *Provision of credit facilities*

Participants in the SPGT have access to intraday collateralised credit between 6 a.m. and 5 p.m. GMT, which must be reimbursed by the cut-off time for interbank transfers (see Section 3.2.7). Other institutions participating in the SLOD, even though they also hold deposit accounts with the Banco de Portugal, cannot be granted intraday credit.

#### *Pricing policies*

The Banco de Portugal's pricing policy is based on the principle of recovering the cost of the banking services it provides.

#### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

The SITEME (see Section 4.3.1) is a securities settlement system owned by the Banco de Portugal (which includes a CSD, the legal framework for which is defined in Decree-Law 22/99 of 28 January 1999) that is used to settle the central bank's own operations, operations

on behalf of the Treasury related to Treasury bills, operations between credit institutions, and any operations involving money market securities deposited with the CSD.

The Banco de Portugal has special supervisory powers in respect of the money market and monetary instruments and cooperates with the Securities Market Commission (Comissão do Mercado de Valores Mobiliários; CMVM), which is the body responsible for the oversight of the securities clearing and settlement system (under Articles 352 and 353 of the Securities Code), with a view to coordinating the exercise of their respective supervisory and regulatory powers. The cooperation between the two institutions is based on a memorandum of understanding.

Euronext Lisbon (see Section 4.2.1), the owner of the private central securities depository, Interbolsa (see Section 4.3.2), is under the supervision of and subject to the regulations issued by the Ministry of Finance, the CMVM and the Banco de Portugal.

#### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

The central bank is involved in cooperation at both general and interbank levels.

Cooperation with the CMVM and the Insurance Supervisory Authority (Instituto de Seguros de Portugal) is carried out within the National Council of Financial Supervisors (Conselho Nacional de Supervisores Financeiros), which was established by Decree-Law 228/2000 of 23 September 2000 and is chaired by the Banco de Portugal. In addition, the deposit guarantee fund, the agricultural guarantee fund, the investors' compensation fund and other entities may be invited to participate in the meetings. The Council's objectives are to coordinate supervisory activity in respect of the financial system and to facilitate the exchange of information.

On interbank matters, the central bank cooperates with the APB within the CISP (see Section 1.2.1).



### 1.2.6 MAIN PROJECTS AND POLICIES

The central bank has undertaken to adopt and implement the policies presented in the “Statement on the role of the Eurosystem in the field of payment systems oversight” (ECB) and the “Core Principles for Systemically Important Payment Systems” (CPSS). The central bank plays a catalyst role at the national level with regard to the pan-European SEPA project through its participation in the CISP (see Section 1.2.1); since April 2005 the SICOI’s TEI sub-system has been able to process cross-border credit transfers through the PE-ACH (pan-European automated clearing house).

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

The main banking institutions are members of the APB, the goal of which is to promote and implement all necessary measures to contribute to the technical, economic and social development of its members’ business. The APB is represented on the CISP (see Section 1.2.1).

The Treasury, which plays an important role in the government payment sector as a result of the modernisation of the government’s traditional payment system, has adopted the Treasury cheque as its payment instrument because it is fully compatible with automated interbank data processing systems.

SIBS, founded by 26 banks in 1983 (then representing 98% of the retail banking market), is the central operational body of the automated interbank payment system. SIBS has played a central role in all projects related to payment systems – e.g. the ATM and EFTPOS network, automated clearing systems, multi-purpose prepaid cards and the SPGT – and, more recently, the development and implementation of a cooperative solution for the interbank exchange of electronic images of cheques. SIBS is also represented on the CISP.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The legal tender in circulation consists of banknotes in seven denominations (€500, €200, €100, €50, €20, €10 and €5) and coins in eight denominations (€2, €1, €0.50, €0.20, €0.10, €0.05, €0.02 and €0.01).

The share of cash in M1 has fallen progressively over the years (from 21.1% in 1992 to 8.7% in 2001), as a result of the increasing use of cashless payment media. The development of ATM facilities for direct payments (public utility bills, taxes, etc.) and the spread of EFTPOS terminals and multi-purpose prepaid cards suggest that the downward trend in the use of cash is likely to continue. With the introduction of the euro banknotes and coins on 1 January 2002, statistics for cash in circulation and M1 are provided solely at a euro area level.

### 2.2 NON-CASH PAYMENTS

Non-cash payments mainly originate from sight accounts. The number of sight accounts at the end of 2005 was estimated at approximately 20 million, which represents an average of two accounts per inhabitant.

There are no limits regarding the payment of interest on sight accounts. Direct debits are normally free of charge, provided they are executed through an automated system. The issuing of new cheque books is subject to charges. Banks collect an annual fee for debit cards. Dormant sight accounts are usually penalised with a maintenance fee. Banks are free to set charges for the services they provide, but their pricing must be publicly disclosed, and the interest rates paid on sight and time deposits may be agreed between banks and individual customers.

The practice as regards value dates is as follows:

- the value date is the same working day when an account is debited;
- the value date is, in most cases, the same working day when an account is credited.

The legal framework for non-cash payments is provided by the Portuguese Commercial Code, supplemented by the Uniform Laws on bills, certificates of indebtedness and cheques. By law, the payer's bank cannot invoke "lack of or insufficient funds" as a reason for not honouring cheques below €150.

According to the figures for 2005 – excluding interbank transfers – payment cards and cheques are the main payment instruments in terms of volume: payment cards accounted for 61.7% of the total and cheques for 17%. However, in value terms credit transfers and cheques are the main instruments: credit transfers accounted for 74.1% and cheques for 22%. Direct debits represented 12.1% of non-cash payments in volume terms and 1.5% in value terms.

#### 2.2.1 CREDIT TRANSFERS

The two main forms of credit transfer, conventional standing orders and variable standing orders, are the most common means of payment used by corporate customers to pay their suppliers and employees. In 2005 13.5% of credit transfers in volume terms were paper-based.

#### 2.2.2 CHEQUES

Cheques are the second most widely used payment instrument (after payment cards), although their use has decreased slightly in recent years. In 2005 209.7 million cheques, totalling €361.9 billion, were issued. 98% of all cheques processed through the interbank clearing system were truncated cheques.

#### 2.2.3 DIRECT DEBITS

Direct debits are also commonly used, although mainly in larger urban centres, and simplify

payment for public utility services (water, electricity, telephone, insurance, etc.). In 2005 the number of direct debits reached 149 million, with a total value of €24.161 billion.

#### 2.2.4 PAYMENT CARDS

##### *Debit cards*

The significant increase in the use of debit cards in Portugal over the last decade is linked to the creation of SIBS, in which most credit institutions participate, including nearly all retail banks. SIBS specialises in payment system automation services. At the end of 2005 the number of cards in circulation was 16.4 million, compared with 2.4 million in 1990.

Most banks issue edc/Maestro, edc/Cirrus and Visa Electron cards.

##### *Credit cards and travel and entertainment cards*

Credit cards may be issued by banks or by UNICRE (see Section 1.1). In addition to its own Unibanco card, UNICRE represents Visa and MasterCard for a large number of banks under the labels Premier, Classic, Gold and Prestige. There is one bank in Portugal that issues Amex cards. Some of the cards issued have both credit and debit functions and offer a wide range of additional services, such as travel and personal accident insurance, car rental offers and discounts with various hotel chains.

At the end of 2005 there were more than 6 million credit cards in circulation. The total value of credit card business in that year was estimated to be over €15 billion (with 300 million transactions), compared with €0.7 billion in 1990.

Many retailers have their own credit cards but hand over the issuance of cards, the management of credit lines and the assumption of credit risk to credit-purchase financing companies (*sociedades financeiras para aquisições a crédito*). At the end of 2005 the number of cards issued was estimated at approximately half a million.

### *Retailer cards*

Large retail outlets, car rental companies and petrol companies issue their own in-house cards. At the end of 2005 petrol companies had issued around half a million cards.

### *Prepaid cards*

Single-purpose prepaid cards such as the telephone cards issued by telecommunications companies are limited to universities and enterprises. These prepaid cards are used to pay for canteen meals, motorway tolls (viaCard), and national and international phone calls.

A multi-purpose prepaid card (Porta-Moedas Multibanco; PMB) came into operation in Portugal in March 1995 but was discontinued in 2005.

### *ATM and POS networks*

In Portugal there is only one nationwide ATM and POS network, called Multibanco, which is operated by SIBS. It is an online and real-time system. The national ATM network was implemented in 1985 and subsequently extended to include the EFTPOS terminals. Open-access ATMs are those which can be accessed by the holder of a card issued by a bank other than that which owns the terminal. In addition to these shared ATMs, special terminals have been installed on banks' premises. These limited-access machines provide special services to the holders of cards issued by the bank in which they are installed. Access to the system is safeguarded by means of magnetic strip cards and PIN codes.

At the end of 2005 the number of ATMs installed throughout Portugal (including limited-access ATMs not operated by SIBS) was 13,841, compared with 821 in 1990, and the number of cards valid for the Multibanco network reached 16.4 million (against 2.4 million in 1990). The number of machines belonging to the six credit institutions that own limited-access ATM networks totalled 3,118. Withdrawals from SIBS machines represented 57% of total transactions, followed by account balance enquiries (35%) and payments for services

(8%). In 2005, at both open and limited-access ATMs, 435 million cash withdrawals and debit payments were carried out (compared with 39.2 million in 1990), amounting to approximately €28.3 billion. The daily average rate of use of SIBS terminals was 164 operations per machine, including account balance notifications and statements. The SIBS Multibanco network also caters for cash withdrawals made using cards of non-residents, as a result of reciprocal agreements with other international networks (MasterCard/Europay and Visa, Bancontact in Belgium, 4B in Spain, SSB in Italy, CLAU in Andorra and LINK in the United Kingdom). Thus, the holder of a Multibanco card has access to ATMs in other European countries. In 2005 non-residents made 7.8 million withdrawals in Portugal, valued at €994 million, and Portuguese nationals made 3.5 million withdrawals abroad, totalling €343 million.

Electronic funds transfers at points of sale (EFTPOS) are expanding rapidly. At the end of 2005 there were 126,380 participating points of sale and 147,137 terminals (compared with 2,672 terminals in 1990), which registered an annual turnover of €22.5 billion (against €0.23 billion in 1990). These turnover figures corresponded to 711.1 million operations in 2005, compared with 7.8 million in 1990. New EFTPOS terminals are mainly being installed in retail outlets – especially smaller ones – and at filling stations.

### **2.2.5 POSTAL INSTRUMENTS**

Situated outside the banking system, the postal transfer system (Serviços Financeiros Postais) offers an important means of payment, mainly used by the social security authorities to make low-value pension payments and, on a minor scale, by companies and individuals. Recently, following a campaign by the social security authorities to have pensions paid via bank transfers, the issuing of national postal transfers has shown a downward trend. This system benefits from a network of branches that in some areas is larger and denser than the banking network.

## 2.3 RECENT DEVELOPMENTS

In the mid-1980s Portugal witnessed rapid developments in the telecommunications field, making it possible to implement teleprocessing networks, either within the larger banks or through interbank links. Interbank cooperation, promoted by the APB together with the central bank, resulted in the creation of the two above-mentioned interbank companies, SIBS (for automated payment networks) and UNICRE (for credit cards).

Banks have made considerable efforts to modernise customer access to payment services. Online connections with corporate customers, home banking, e-banking and mobile phone banking are now available in Portugal.

SIBS has been involved in operating the Multibanco network, the PMB scheme (see Section 2.2.4), automated cheque clearing (see Section 3.3.4.1), the TEI (see Section 3.3.4.2), automated bill of exchange clearing (see

Section 3.3.4.4) and the new direct debit system, SDD (see Section 3.3.4.3).

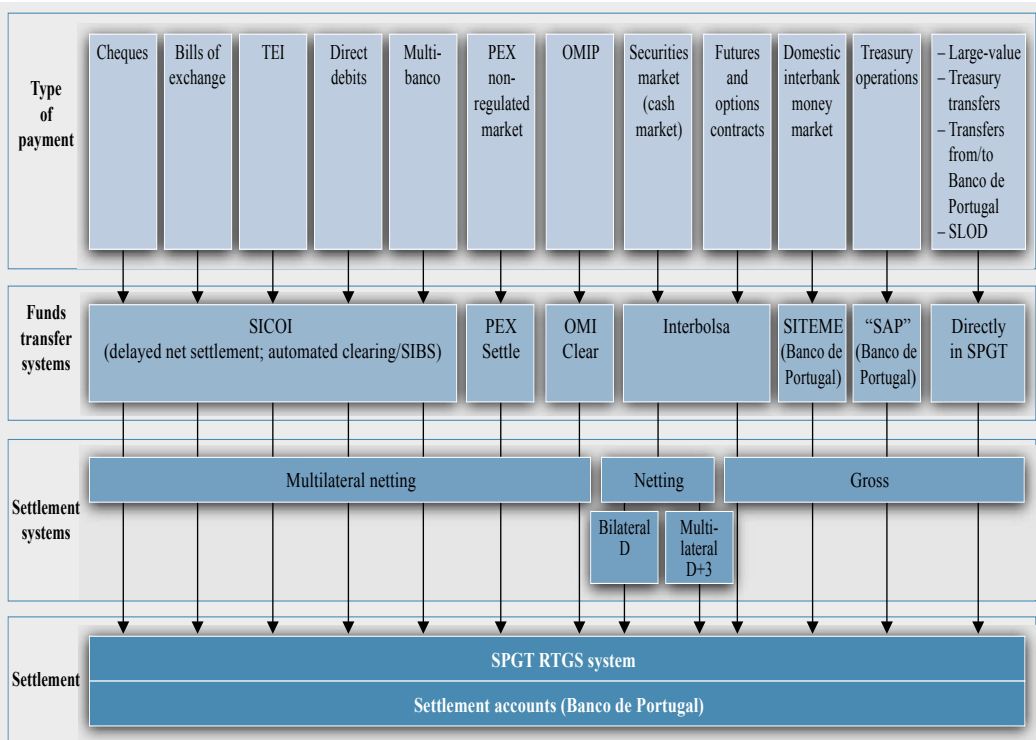
As regards Multibanco, further developments are envisaged with a view to providing a wider choice of services through this network. It is already possible to pay for a wide range of services (e.g. train and theatre tickets, taxis and utility bills) and for road tolls using either a debit card or a “Via Verde” (a magnetic tag placed on a car windscreen identifying the driver’s bank account, from which the road toll is debited, and enabling the driver to pass through toll stations without stopping).

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

The Banco de Portugal is both the manager and settlement agent for the interbank clearing system and the SPGT.

Chart I



All banks possess electronic processing (teleprocessamento) networks for their inter-branch transactions, enabling data to be transmitted immediately among their branches and thus making it possible for a customer to access its bank account at any branch of the bank's network.

Payment flows between banks are effected by means of settlement accounts held with the central bank or, to a lesser extent, nostro/loro accounts. In order to exchange information on interbank payments, banks use either the TEI or traditional means (such as telex, secure fax and the SWIFT networks). Debits and credits between institutions are cleared mainly through SICOI networks. Final settlement takes place in the accounts held with the central bank.

The SICOI is an automated interbank exchange and settlement circuit, allowing information to be channelled indirectly between banks through a central interface (SIBS) which selects and directs the information to various entities, i.e. recipients, drawees and the central bank. This system is based on an online electronic processing system which operates 24 hours a day.

Transactions between institutions on the domestic markets (the MMI and MOI), which are registered and conducted through the SITEME, are settled on a gross basis by the Banco de Portugal, which debits and credits the participants' settlement accounts (see Section 1.2.2).

In mid-1993 the Banco de Portugal, as agreed at the European level, started to implement the SPGT with the direct participation of SIBS and resident credit institutions. In full operation since 30 September 1996, this large-value RTGS system, which was the first to be implemented in Portugal, channels all payments above a predefined amount that were previously processed through the interbank netting systems (see Section 3.3).

Finally, on 4 January 1999 the SPGT became part of the TARGET system. The SPGT is already preparing for its migration to TARGET2. That migration will be in the form of a "phased approach", in which some parts of the current infrastructure will co-exist with the connection to the Single Shared Platform from the time of its completion (probably in February 2008) for a transition period lasting a maximum of four years.

### 3.2 REAL-TIME GROSS SETTLEMENT SYSTEM: SPGT

The SPGT, which became fully operational in 1996, is a system operated and managed by the Banco de Portugal. System communications between participants and the Banco de Portugal are based on the SIBS network, with alternative means (SWIFT, fax and telex) available as an emergency backup. The main objectives of this RTGS system are:

- to minimise credit, liquidity and systemic risks; and
- to provide participants with information in the course of the day on the balance of their accounts with the Banco de Portugal and on queuing and other operations that have been carried out.

As such, it constitutes an essential instrument to enable participants to manage their funds.

#### 3.2.1 OPERATING RULES

The operating rules of the SPGT are laid down in a regulation approved by the Board of Directors of the Banco de Portugal and contractually accepted by the system participants. The SPGT Regulation stipulates the broad lines of the system and the relationships and responsibilities of the parties involved.

The Procedures Manual is another important reference document for the SPGT and provides the participants with details of the procedures

to be followed in order to ensure that the system functions smoothly.

The System Manual (a non-binding document) aims to provide an overview of the main operational features of the SPGT and a complete description of its components: the message processor, the settlement processor, the SPGT control system and the interfaces with the participants and the Banco de Portugal.

### 3.2.2 PARTICIPATION IN THE SYSTEM

The following entities may apply for SPGT membership: (i) credit institutions authorised to operate in Portugal in accordance with Portuguese and European Community legislation; (ii) public sector bodies accepting deposits or other repayable funds which frequently initiate or receive large-value transfers involving other participants (which are authorised to participate on a case-by-case basis); and (iii) the Treasury. Access is granted provided that the applicants possess the minimum technical facilities required by the system, have signed the SPGT membership contract and have paid the membership fee.

At the end of 2005 the SPGT had 37 participants.

The other 98 financial institutions that hold deposit accounts with the Banco de Portugal for the primary purpose of settling operations in the SITEME, which is operated by the Banco de Portugal, are not eligible to participate in the SPGT (namely the mutual agricultural credit banks, which are represented by the CCCAM, and investment, leasing and factoring companies). These financial institutions use a dedicated gross settlement system called SLOD, which is a less sophisticated system governed by more restrictive rules (e.g. participants have no access to the SIBS transfer channel and therefore use SWIFT, fax and telex and cannot be granted intraday credit), although settlement does occur within the SPGT.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The operations described below must be processed via the SPGT, irrespective of their unit value:

- (i) settlement of interbank clearing system balances (cheques, Multibanco, the TEI, direct debits and bills of exchange) and stock exchange clearing balances;
- (ii) money market operations contracted and processed via the SITEME; and
- (iii) operations carried out with the Banco de Portugal (excluding SITEME operations).

Moreover, the following operations must be processed via the SPGT if their unit value is equal to or more than €100,000:

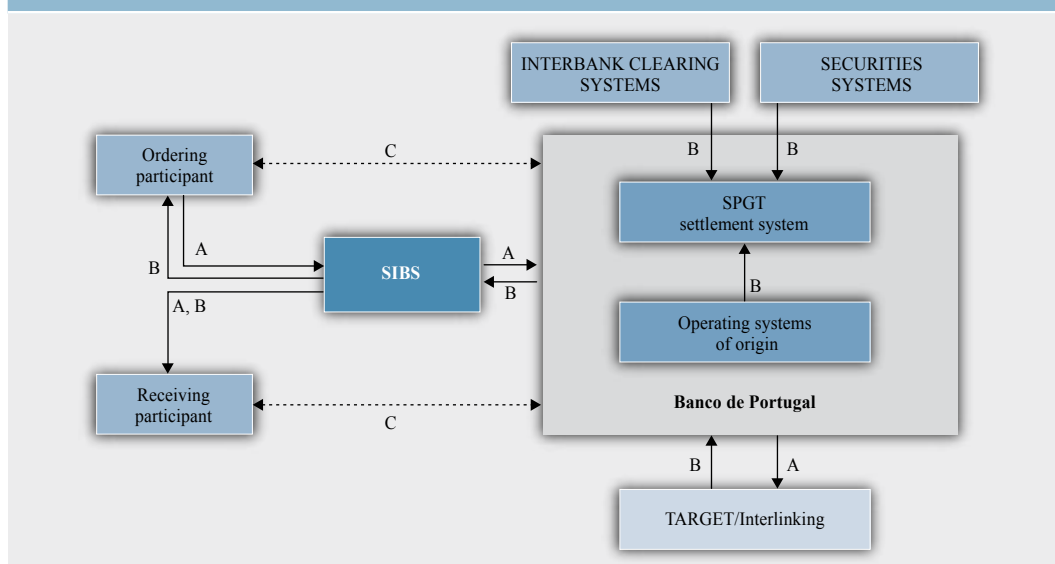
- (i) interbank transfers between participants (including transfers on behalf of customers) with a value date that falls within the two subsequent working days; and
- (ii) settlement of large-value cheques and direct debits (equal to or more than the above-mentioned limit).

Operations are also processed via the SPGT, regardless of their unit value, when related to the following:

- (i) TARGET cross-border transfers;
- (ii) transfers ordered in favour of other Banco de Portugal depositors not participating in the SPGT (SLOD participants); and
- (iii) credit entries resulting from transfers ordered by other Banco de Portugal depositors in favour of SPGT participants.

Participants may optionally process transactions below €100,000 through the SPGT.

Chart 2



### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The SPGT (see Chart 2) mainly comprises the following components: the SPGT communications system (between the Banco de Portugal, SIBS and the participants) and the SPGT settlement processing system. The latter is made up of a continuous position accounting system together with a sub-system which incorporates the processing of payment orders channelled via SIBS, the settlement of orders received from the Banco de Portugal operating systems, the queuing of operations and the SPGT control system. The set of interfaces used to link the internal operating systems, the securities settlement systems and the interbank clearing systems to the SPGT settlement processing system, as well as the cross-border Interlinking component, complete the SPGT.

The Banco de Portugal created a direct online link, which is independent from the SIBS communications structure, between the central bank settlement system and the participants in the SPGT. This alternative information channel provides participants with full details on settled operations, queuing operations, operations with a future value date, the balance on the settlement account and the amount of intraday credit granted.

SIBS developed a standard front-end treasury management application to act as an interface between the SPGT participants, SIBS and the Banco de Portugal. It also provides facilities to enable participants to channel their transactions to the SPGT in advance of the value date, to monitor money flows to and from other participants and to control minimum reserves held with the central bank.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

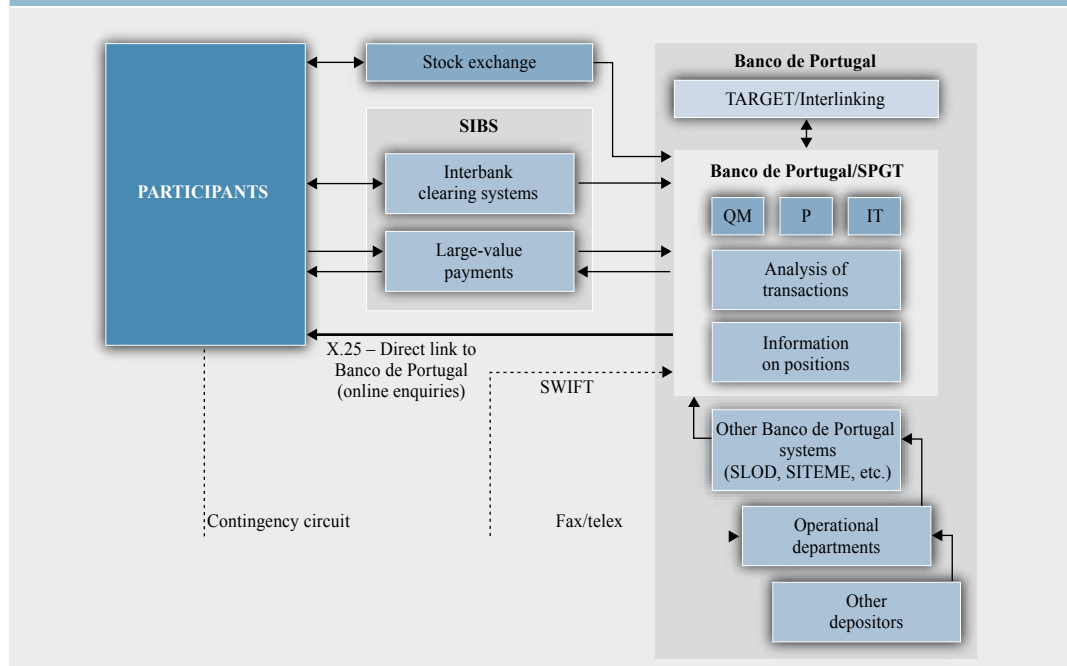
In terms of its message routing configuration, the SPGT is a classic Y-shaped settlement system.

As a message-based system, the SPGT was structured with a view to facilitating a fast, confidential and secure exchange of information among the users of the system.

Chart 3 illustrates the major links between the parties and systems in the SPGT. The links represented are those with the clearing systems (interbank and stock exchange clearing systems) and the operating systems of the Banco de Portugal, as well as the direct online link between participants and the Banco de Portugal, which is only for obtaining information on settlement accounts.



Chart 3



Another important link is the contingency circuit, which may be implemented in two ways: (i) the automatic processing of operations via SWIFT; and (ii) the manual entering of SPGT operations by Banco de Portugal staff on behalf of participants which are temporarily unable to use the mechanisms normally provided for this purpose. As a general rule, all the means of communication used must have authentication and confidentiality features similar to those of the mechanisms normally used. In addition to SWIFT, the following alternative communication devices may be used: encrypted fax, encrypted telex and courier services (the last category being permissible only if all else fails).

In order to meet the IT security standards established for the SPGT, all system users are obliged to use cryptographic security service modules known as SSMs (the SPGT security service modules that must be connected to each participant's application gateway).

The equipment is protected by physical and logical devices, which would cause all the

information they contain (programs and data) to be destroyed if they were misused.

The confidentiality of SPGT messages is guaranteed at two levels: (i) at the message cipher level, with messages exchanged within the SPGT circulating from sender to receiver in coded form; and (ii) at the message structure level, with SPGT messages structured on the basis of the concept of data blocks. Since the SPGT is a Y-shaped system, details of domestic payment orders can be maintained at SIBS, which only delivers the data once the central bank's SPGT settlement system confirms settlement.

### 3.2.6 SETTLEMENT PROCEDURES

Every institution participating in the SPGT holds a single settlement account with the Banco de Portugal, the debit balance of which cannot exceed the collateralised credit ceiling previously agreed with the central bank.

Operations entered in the system are processed and settled in accordance with a schedule beginning at 6 a.m. and ending at 5 p.m. GMT.

The cut-off for credit transfers channelled via the SPGT channel is 5 p.m. GMT.

Orders that exceed the predefined credit ceiling are held in a queue. Queuing operations are assigned one of three levels of priority: A, B or C. For example, operations related to the settlement of SICOI net balances have the highest priority, i.e. A. The remaining pending operations are stored, within each block of priorities, in chronological order (FIFO) and, if necessary in order to resolve gridlock situations and accelerate the settlement of queuing operations, there are specific operational and technical procedures, such as permanent virtual system-wide gridlock resolution; periodic simulations; and changing operations assigned priorities B and C to priority A.

Any operation entering the queue must be covered by sufficient funds and/or collateral within 90 minutes (a system parameter) and in any case before the time at which the queuing mechanism normally closes (5 p.m. GMT), otherwise it is cancelled.

The ordering participant may ask the system to cancel a queuing operation. If it is a domestic payment, confirmation of the transaction by the beneficiary is required.

Operations and transfers are considered final from the moment they are entered in the receiving settlement account.

The settlement account of the participant sending a cross-border payment via TARGET and the Interlinking mechanism is debited, provided that there are sufficient funds (a sufficient account balance or collateralised intraday credit), and the account with the receiving central bank is credited simultaneously. As with domestic payments, if funds are insufficient the cross-border payment is held in a queue and must be covered within 90 minutes.

A cross-border transfer is final only after the receiving central bank has confirmed the payment.

### 3.2.7 CREDIT AND LIQUIDITY RISK

SPGT participants may use their required reserves as intraday liquidity to make payments. If necessary, they may also use the following instruments: a standby collateralised current account credit facility and a special credit facility known as a supplementary intraday liquidity facility.

The standby collateralised current account credit facility allows participants to have a debit position in their settlement account up to a predefined amount set in their collateralised intraday credit agreement, which is calculated on the basis of certain indicators – e.g. debt balances in the clearing systems.

Participants may reimburse intraday standby collateralised credit by 5 p.m. GMT by means of market operations among themselves and/or with the Banco de Portugal via the SITEME. If credit institutions fail to reimburse outstanding intraday collateralised credit by the closing time of the SPGT, they may make use of the marginal lending facility, which is one of the two standing facilities available to Eurosystem counterparties. The maturity of credit extended under this facility is overnight and the interest charged is the marginal lending facility rate, as announced by the Governing Council of the ECB.

The supplementary intraday credit facility is a form of repo for eligible securities. This instrument has been created with a view to providing participants with a means of satisfying intraday liquidity requirements arising from the need to cover queuing operations within 90 minutes.

### 3.2.8 PRICING

The main purpose of the SPGT price list is to promote the correct and efficient use of the system with a view to:

- facilitating the gross settlement of large-value payments;
- ensuring the smooth operation of the system and avoiding gridlock situations, especially at the SPGT closing time; and
- covering the operating costs of the system.

The price structure of the SPGT is based on parameters such as the amount, entry time, queuing time and settlement time (normal and late) of the payment.

This price structure includes three price categories: a membership fee, a monthly user charge and a variable charge for each type of operation.

The pricing of SPGT operations aims to accelerate the transmission of payment orders and avoid gridlock situations at the SPGT closing time (5 p.m. GMT), and, for this reason, there are lower prices for transfers channelled to the SPGT earlier in the day. A penalty charge is applied to the cancellation of queuing payments after the time-limit for their settlement (90 minutes) has expired. At the same time, the pricing is intended to discourage the processing of low-value payments in the SPGT. For cross-border TARGET payments, a common EU-wide price is in force, based on a regressive fee system according to the number of transactions carried out in a month.

### 3.2.9 STATISTICAL DATA

In 2005 the overall volume of payment orders and settlement confirmations processed by the SPGT settlement system was an average of 5,240 operations per day, with a daily average value of €20.8 billion.

## 3.3 RETAIL PAYMENT SYSTEM: SICOI

### 3.3.1 OPERATING RULES

The operating rules of the SICOI automated interbank clearing system are based on the SICOI Regulation, issued by the Banco de Portugal, and on the Technical Specifications

Manuals agreed between the commercial banks, SIBS (as the network provider) and the Banco de Portugal, and distributed by the central bank to the participants.

The SICOI Regulation lays down the system guidelines and the responsibilities of and relationships between participants.

The Technical Specifications Manuals are also important documents for the smooth operation of the system, as they stipulate detailed procedures which must be followed by participants with regard to data transmission. Currently there are five such manuals, one for each of the present sub-systems (see Section 3.3.4).

### 3.3.2 PARTICIPATION IN THE SYSTEM

To participate, banks and other similar entities must submit an application for membership, which must be approved by the Banco de Portugal. Applications must be submitted, together with the opinion of the service provider (SIBS) as to whether the applicant institution meets the necessary technical and operating conditions. Participation in a sub-system is subject to the successful completion of a set of tests imposed by the service provider.

In order to directly participate in the SICOI, applicants must participate in the SPGT. Participation in one or more SICOI sub-systems does not automatically entitle members to participate in the other sub-systems.

Members may participate either directly or indirectly. Entities that do not participate directly in any of the sub-systems may be represented through a direct participant which assumes, vis-à-vis the other participants, the rights and obligations of the parties represented.

The Banco de Portugal may, for technical reasons, cancel authorisations already granted (e.g. if a participant's communication systems frequently break down). A lack of liquidity and non-compliance with rules laid down in the

SICOI Regulation may also lead to the withdrawal of previously granted authorisations.

### 3.3.3 TYPES OF TRANSACTION HANDLED

The SICOI covers the automated clearing of the following types of transaction: cheques, credit transfers, direct debits, commercial bills and transactions carried out through the Multibanco network.

### 3.3.4 OPERATION OF THE TRANSFER SYSTEM

The system operates on every bank working day. It is open 24 hours a day and encompasses the five sub-systems mentioned below, each of which have different processing procedures and data formats which are defined in the respective Technical Specification Manuals.

#### 3.3.4.1 Cheque sub-system

On 27 October 2003 a new interbank image exchange system replaced the old system of physically exchanging non-truncated cheques and similar documents which used to take place at four business centres located in mainland Portugal, Madeira and the Azores. Almost all cheques processed in this sub-system are truncated, which means that the documents are kept at the bank of first deposit. However, there is a threshold above which the image of the original cheques must be exchanged among participants (2.0% of cleared cheques exceed this threshold).

At the end of 2005 this sub-system had 29 direct participants and 29 indirect participants.

All cheques must comply with a common standard, which comprises an OCR-B optical line in order to allow automated processing and data transmission among participants.

Large-value cheques are processed through automated clearing, but they are settled on a gross basis in the settlement accounts held with the Banco de Portugal (see Section 3.2.3).

#### 3.3.4.2 Electronic funds transfer sub-system

This sub-system (the TEI) covers both domestic and cross-border credit transfers of up to €100,000. Sums in excess of this amount must be channelled through the SPGT. All transactions are paperless. Data transmission and clearing takes place twice a day at the cut-off times indicated in the table below. The first cut-off is for domestic and cross-border credit transfers ordered by private and commercial customers, while the second is mainly for domestic and cross-border interbank transfers.

At the end of 2005 there were 40 direct participants and 18 indirect participants in this sub-system.

#### 3.3.4.3 Direct debit sub-system

This sub-system began operating in the last quarter of 2000 and covers preauthorised debits on the payer's bank account initiated by the payee. The payer must issue a mandate in accordance with the standards defined in specific regulations issued by the Banco de Portugal in order to pay utility bills, insurance, school fees, etc. These regulations also establish the rights and obligations of creditors, debtors and participant credit institutions.

The debit authorisation, which is granted electronically by the debtor, is effected mainly through the Multibanco network. To protect consumers, the debtor has five working days to revoke a debit after it is made.

This newer sub-system was created in order to gradually replace the older direct debit system, which was set up in 1983 and is based on bilateral arrangements between creditor businesses and each debtor's bank. The two systems are likely to continue to coexist for the foreseeable future.

This sub-system had 26 direct and 11 indirect participants in 2005.

#### 3.3.4.4 Bill of exchange sub-system

This sub-system is based on the total truncation of commercial bills at the drawer's bank, which electronically transmits the information collected to the drawee's bank seven days before maturity. The data are stored for seven days in a centralised electronic portfolio at SIBS. Bills are divided into two types depending on the manner in which they can be paid: domiciliary bills are paid by debiting the drawee's bank account; and non-domiciliary bills are paid at any bank branch or through a Multibanco terminal. Settlement is by netting for bills with a value below €100,000, and by gross settlement in the SPGT for higher values. This sub-system also accepts commercial bills denominated in foreign currencies, which are settled in the respective currency through the correspondent bank accounts via SWIFT.

At the end of 2005 there were 21 direct and 13 indirect participants.

#### 3.3.4.5 The Multibanco sub-system

This sub-system covers transactions made with debit cards and credit cards at ATM and EFTPOS terminals (see Section 2.2.4) and operates in real time seven days a week. A wide range of transactions can be carried out at ATM terminals, including making cash withdrawals, deposits and transfers (both transfers within the same bank and interbank transfers), paying public utility bills, commercial bills and monthly school fees, booking and paying for theatre and train tickets, loading mobile phone cards and multi-purpose prepaid cards, obtaining account balance notifications and statements, ordering

cheques and altering PIN codes. Originally, ATMs were restricted to bank branches, but in recent years they have been installed on the premises of supermarkets, large companies and public services.

The electronic authorisations required by the direct debit sub-system and the Via Verde scheme (see Section 2.3) are received through ATM terminals. Via Verde toll payments are also cleared using this sub-system.

At the end of 2005 there were 23 direct and 9 indirect participants in the Multibanco sub-system.

#### 3.3.4.6 Timetable

The table below summarises the closing times (GMT) of sessions in SIBS and of settlements at the Banco de Portugal.

#### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

SICOI participants use the SIBS interbank network for transmitting their transactions, which are processed in batches, with the exception of Multibanco sub-system transactions, which are communicated in real time.

#### 3.3.6 SETTLEMENT PROCEDURES

Balances are calculated by SIBS at the close of multilateral netting sessions and communicated via file transfer to the Banco de Portugal, which makes the respective debit and credit entries in participants' accounts during the business settlement hours specified in the table below.

Sub-system	Closing time of sessions in SIBS	Closing time for settlement at the Banco de Portugal
Electronic funds transfers		
First closing time	9 p.m.	9.30 a.m. <sup>a)</sup>
Second closing time	1.45 p.m.	3 p.m. <sup>b)</sup>
Multibanco	8 p.m.	9.30 a.m. <sup>a)</sup>
Bills of exchange	9.30 p.m.	9.30 a.m. <sup>a)</sup>
Direct debits	10 p.m.	9.30 a.m. <sup>a)</sup>
Cheques	3.30 a.m.	9.30 a.m. <sup>a)</sup>
a) Next day. b) Same day.		

### 3.3.7 CREDIT AND LIQUIDITY RISK

Credit facilities collateralised by securities eligible for monetary policy operations are available to participants, as are the operational facilities of the SPGT system (i.e. the queuing mechanism) that allow participants to perform real-time credit and liquidity risk management and treasury management.

Operations processed through any of the SICOI sub-systems are final and irrevocable after settlement at the Banco de Portugal.

If there are insufficient funds in the participant's settlement account to cover its obligations, penalties are applicable and the participant may even be excluded from participation.

### 3.3.8 PRICING

The pricing policy is based on the principle of self-financing. Therefore, there is mutual compensation of operating costs between participants.

The Banco de Portugal charges participants per balance and per sub-system.

There is a price list for the services provided to SICOI participants by SIBS, which charges per transaction and in accordance with the transaction type. SICOI also has a list of prices for participants, which is based on the administrative costs of operations. In both cases, costs are assessed automatically via EDP, and invoice totals are debited on a monthly basis. There are no standard regulations governing the prices that banks charge their customers, although banks are obliged to display their price lists clearly.

### 3.3.9 STATISTICAL DATA

In 2005 SICOI handled a daily average of 4.5 million transactions, with a daily average value of €1.2 billion. The cheque sub-system accounted for 11.3% of the operations and 58% of their value, while the Multibanco sub-system accounted for 80.8% and 17.5% respectively.

### 3.3.10 MAIN PROJECTS AND POLICIES

The following measures are envisaged for the near future:

- in the medium term, it is foreseen that a component of the current bill of exchange sub-system's transactions, namely the collection of receipts, will be integrated into the direct debit sub-system; and
- implementation of the SEPA project, monitored by the Banco de Portugal, will be carried out in order to bring the TEI, SDD and Multibanco sub-systems into line with SEPA standards (see Section 1.2.1).

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 EURONEXT LISBON

In January 2002 the Lisbon and Oporto Stock Exchange joined the Euronext group and changed its name to Euronext Lisbon – Sociedade Gestora de Mercados Regulamentados SA (Euronext Lisbon).<sup>1</sup>

Euronext Lisbon<sup>2</sup> is a limited company governed by private law. It is subject to: the applicable regulations; Decree-Law 394/99 of 13 October 1999<sup>3</sup> on the legal framework for entities managing securities markets and related systems (as amended by Decree-Law 8-D/2002 of 15 January 2002); the Securities Market Code (Decree-Law 486/99 of 13 November 1999, as amended by Decree-Laws 61/2002 of 20 March 2002, 38/2003 of 8 March 2003, 107/2003 of 4 June 2003, 183/2003 of 19 August 2003 and 66/2004 of 24 March 2004); and the Company Law.

- 1 The Lisbon and Oporto Stock Exchange was a Portuguese limited company, governed by private law, that was created after the merger of the Lisbon Stock Exchange Association and the Oporto Derivatives Exchange Association as a result of changes to the legal status of both associations.
- 2 For further details on the Euronext exchanges, see the country chapters of Belgium, France, the Netherlands and the United Kingdom.
- 3 Legal system governing the corporations managing regulated and non-regulated securities markets and similar systems.



The securities markets operating in Portugal can be either regulated or non-regulated markets. Regulated markets comprise the official quotation market (Eurolist by Euronext), the derivatives market (futures and options) and MEDIP. Non-regulated markets include the Unlisted Market (Euronext Lisbon), the structured securities market (EasyNext Lisbon) and the PEX market. Euronext Lisbon manages all of the above-mentioned markets, except MEDIP (which is managed by MTS Portugal) and the PEX (which is managed by OPEX – Sociedade Gestora de Mercado de Valores Mobiliários Não Regulamentado SA).

LCH.Clearnet SA operates as a clearing house and as a central counterparty for operations carried out in Euronext group markets, including the Euronext Lisbon market, in the spot market and in the derivatives market.<sup>4</sup>

In its capacity as a clearing house and central counterparty, LCH.Clearnet SA's functions include registration, clearing, settlement, collateral management and risk management associated with operations carried out in Euronext Lisbon markets.

The actual settlement of spot market operations (including those of Eurolist by Euronext, the Unlisted Market and EasyNext Lisbon) and derivatives market operations is carried out via the central securities depository of Interbolsa (see Section 4.3.2).

#### 4.1.1.1 Legal and institutional aspects

Euronext Lisbon is under the supervision of and subject to the regulations issued by three bodies:

**The Ministry of Finance:** this defines the legal framework applicable to derivatives in goods, services, foreign currency and money market instruments, and any other derivatives operations not yet covered by the Securities Market Code;

**The Securities Market Commission:** Euronext Lisbon is supervised by the CMVM, the

authority responsible for regulating, supervising and promoting domestic securities markets. The CMVM is also responsible for supervision as regards the futures and options markets, contracts and participants. It also approves proposals submitted to it concerning the final specifications, implementation and/or cancellation of contracts. It oversees and verifies compliance with market regulations, closely monitoring Euronext Lisbon's activities. Moreover, the CMVM also has disciplinary powers in this area;

**The Banco de Portugal:** the central bank has special supervisory authority over the money market and monetary instruments and cooperates with the CMVM with a view to coordinating the exercise of their respective supervisory and regulatory powers. This cooperation may comprise coordination and cooperation in the preparation and approval of regulations, mutual consultation and the exchange of information, etc. The cooperation between the Banco de Portugal and the CMVM is based on a memorandum of understanding.

#### 4.1.1.2 Ownership and governance

Euronext Lisbon is a limited company responsible for the management of regulated securities markets, excluding MEDIP, and non-regulated markets, such as the Unlisted Market and EasyNext Lisbon. It is a member of the Euronext group, which also includes the Paris, Brussels and Amsterdam stock exchanges (Euronext Paris, Euronext Brussels and

<sup>4</sup> LCH.Clearnet SA was created in December 2003 as a result of the merger of LCH.Clearnet Ltd (formerly LCH) and Banque Centrale de Compensation SA (formerly Clearnet). The latter was 80% owned by Euronext NV and 20% owned by Euroclear Bank. Euronext NV was formed as a result of the merger of the Paris, Brussels and Amsterdam derivatives exchanges in September 2000. Presently, LCH.Clearnet SA also owns 100% of the former BVLP – now Euronext Lisbon – and of LIFFE (the London International Financial Futures and Options Exchange). LCH.Clearnet SA is a credit institution registered in France and subject to the supervision of the competent French authorities, namely the Banque de France (oversight), the Comité des Établissements de Crédit et des Entreprises d'Investissement (authorisation of establishment), the Commission Bancaire (direct and prudential supervision) and the Autorité des Marchés Financiers (approval of clearing regulations). For further details on LCH.Clearnet SA, see the French country chapter.



Euronext Amsterdam). Its activity in Portugal started with the acquisition of the Lisbon and Oporto Stock Exchange in January 2002. Presently, it is wholly owned by LCH.Clearnet SA. In its capacity as the manager of the regulated markets of the Euronext group in Portugal, Euronext Lisbon is responsible for the technical regulations and oversight of these markets and their participants.

The Securities Market Code lays down the overall legal framework applicable to the securities market. Some aspects, however, are regulated by executive orders issued by the Ministry of Finance, general regulations issued by the CMVM and regulations and technical rules issued by Euronext Lisbon.

#### 4.1.1.3 Trading system (NSC)

LIST, the trading system of the former BVLP, was discontinued with the migration of the spot market, on 7 November 2003, to the NSC, the French trading system used by Euronext Lisbon and the rest of the Euronext group.

The NSC is an open architecture system with a multi-product master agreement (for shares, bonds, warrants, futures and options), making it possible to use different trading schemes (“order-driven”, “quote-driven” and hybrid schemes) with a single electronic trading platform.

The NSC platform is used by more than 15 stock exchanges worldwide: Bovespa and BM&F (São Paulo, Mexico, Toronto and Montreal), CME (Chicago, Casablanca, Tunis, Beirut, Singapore, Amman and Warsaw), and Euronext NV (Paris, Brussels, Amsterdam, Lisbon and LIFFE).

#### 4.1.1.4 Derivatives market

Derivatives market trading began on 20 June 1996 with two listed futures contracts: a long-term interest rate futures contract (the OT 10 futures, which was delisted in 2000) and a stock index futures contract (PSI-20). The latter is traded on a stock exchange index, which was selected to become the underlying element of

the futures contracts, in line with international standards. Since 1997 a further four contracts have been listed (in telecommunications, electricity, banking and cement).

In April 1997 a new repo market came into operation. On 1 October 1999 the Lisbon and Oporto Stock Exchange introduced securities lending, with a view to increasing the efficiency and speed of the settlement and clearing system. Securities lending was discontinued in July 2003, when Banque Centrale de Compensation (formerly Clearnet) assumed the role of central counterparty for the derivatives market.

On 19 March 1999 the options market began to operate, listing PSI-20 options and stock options.

Since the Lisbon and Oporto Stock Exchange merged with the Euronext group and became Euronext Lisbon, the range of available derivative instruments has widened, since all instruments available in Euronext markets may be listed.

#### 4.1.1.5 The trading system (LIFFE Connect) and clearing system (Clearing 21)

The migration to a single trading and clearing technical platform culminated with the migration of the trading platform of the Portuguese derivatives market on 22 March 2004. After this migration, SEND, the derivatives trading system inherited by Euronext Lisbon from the Lisbon and Oporto Stock Exchange, was discontinued, and the LIFFE Connect system was implemented as the standard trading platform for derivatives (futures and options). The clearing system common to both the spot market and the derivatives market, Clearing 21 (C21), had migrated on 15 July 2003. On that date, automated loans of collateral, a service previously provided by the Lisbon and Oporto Stock Exchange, were replaced by the guarantee fund of LCH.Clearnet SA.

The connection between Euronext Lisbon and the Spanish derivatives market (MEFF) was severed on 19 March 2004.

The LIFFE Connect trading mechanism is “order-driven” for futures and “quote-driven” for options.

Clearing 21 is real-time software that permits a single technical platform to be used for clearing in the spot market and simultaneously in the derivatives market. It allows for trading and clearing in different currencies and with central collateral, guaranteed by LCH.Clearnet SA (the former Banque Centrale de Compensation SA).

This software is structured in open architecture modules. It is a multi-product, multi-market and multi-currency “made-to-order” solution, permitting members to access all Euronext markets (Amsterdam, Brussels, Lisbon and Paris) on a single participation basis.

#### 4.1.1.6 Types of membership

Euronext Lisbon derivatives market members may be brokers, dealers or banks duly authorised to operate in Portugal. Branches of credit institutions or other financial institutions having their head office in EU countries may be members if they are legally authorised to trade futures and options in their home country. Branches of credit or financial institutions from non-EU countries must present their case for membership to the Banco de Portugal. Since the implementation of Council Directive 93/22/EEC on investment services in the securities field, EU financial institutions may become members without being physically established in Portugal.

There are two different categories of market member:

- Trading members, which may trade on the derivatives market through LIFFE.Connect SA, entering buy and sell bids directly in the system (and having to clear operations through a clearing member); and

- Clearing members, which may take part in the clearing of operations and the provision of collateral, and may also enter bids in the settlement systems.

LCH.Clearnet SA also performs the function of a clearing house in the Euronext Lisbon derivatives market, providing registration, clearing, settlement, collateral management, daily gains and losses management and risk management associated with the operations carried out. LCH.Clearnet SA also plays the role of a central counterparty in Euronext markets, occupying the buyer position vis-à-vis the seller and the seller position vis-à-vis the buyer, thus ensuring that the operations are completed.

### 4.1.2 MTS PORTUGAL

#### 4.1.2.1 Legal and institutional aspects

MTS Portugal was established in Lisbon on 24 May 2000 and manages the electronic trading system of MEDIP. MEDIP is the Portuguese regulated market for the wholesale electronic trading of government debt securities by primary dealers, which went live on 24 July 2000.

MEDIP, as a regulated market, falls within the scope of Council Directive 93/22/EEC on investment services in the securities field.

MTS Portugal is managed by a Board of Directors elected by its shareholders, which comprise primary dealers (OEVTS), the Portuguese Central Government Debt Office (Instituto de Gestão do Crédito Público; IGCP) and MTS SpA. Trading in MTS is based on a telematic platform developed by the Italian company SIA SpA (Società Interbancaria per l'Automazione).

MEDIP, its managing company and its members are subject to supervision by the CMVM.

#### 4.1.2.2 Instruments

MTS Portugal is an electronic trading platform for securities issued or in the process of being

issued by the Portuguese government, namely Treasury bonds and Treasury bills.

#### 4.1.2.3 Participants

Liquidity in the system is ensured by the participation of OEVTs and Treasury bill specialists in MTS Portugal, in their capacity as “market-makers”. Since 2 October 2000 the system has been open to all institutions wishing to become market members or market dealers and meeting the criteria set out in the MTS regulations on market membership.

#### 4.1.2.4 Settlement procedures

Settlements are effected via Euroclear Bank and Clearstream Banking Luxembourg on a DvP basis. The communication bridge between Euroclear Bank and Clearstream Banking Luxembourg allows for the automated settlement of transactions executed by counterparties holding accounts with either agent. In line with the settlement procedures of these companies, MTS Portugal transmits payment and delivery instructions in respect of each individual transaction via SWIFT to Euroclear Bank and Clearstream Banking Luxembourg on behalf of both counterparties.

### 4.1.3 PEX MARKET

The PEX market is a non-regulated securities market, specialising in domestic securities, registered with and under the supervision of the CMVM and managed by OPEX – Sociedade Gestora de Mercado de Valores Mobiliários Não Regulamentado SA.

#### 4.1.4 LEGAL AND INSTITUTIONAL ASPECTS

The PEX market was established under Article 199, (1), c) of the Securities Market Code, approved by Decree-Law 486/99 of 13 November 1999.

OPEX was established within the scope of Decree-Law 394/99 of 13 October 1999, as amended by Decree-Law 8 D/2002 of 15 January 2002. It is the entity managing the PEX market. It was set up mainly for the purpose of managing and promoting this market, and providing services related to the issuing

and trading of securities, provided that these do not involve intermediation activities.

#### 4.1.3.2 Instruments

The PEX market specialises mainly in domestic securities, and it trades in shares, bonds, investment funds, certificates and structured products (for instance warrants and turbo warrants).

#### 4.1.3.3 Participants

Any entity that complies with the requirements laid down in Article 203 of the Securities Market Code may be a member of the PEX market, i.e. banks, brokers, dealers and institutional investors authorised to execute operations in the PEX market.

Presently, participants in the PEX market may have access to this market as: issuers (of securities to be traded in the PEX market); members (financial intermediaries authorised to carry out securities operations or institutional investors); and advisers (participants performing tasks related to the acceptance of securities).

Participants in the PEX market may have access to the market either via the internet or via a dedicated data line.

#### 4.1.3.4 Settlement procedures

PEX market trading must comply with the traditional stock exchange model. Securities may be traded in a continuous system, by call or as a special operation. Operations are directly carried out between parties or via the entering of automated bids in the trading system (Trader Web Station).

The physical settlement of PEX operations occurs in PEXSettle, the PEX settlement system, three working days after they are registered in the trading system.

After each PEX market session, the management of PEXSettle prepares a multilateral settlement matrix intended to assess the positions to be

physically and financially settled in respect of each participant.

PEXSettle only settles operations that are exclusively carried out in the PEX market in securities registered with Interbolsa and Clearstream. The physical settlement of operations directly entered in the trading system occurs in the real-time settlement system of Interbolsa or in the Clearstream system, via DvP instructions, by 10 a.m. GMT on the settlement day.

Financial settlement is carried out via the accounts held by PEXSettle participants with the Banco de Portugal.

#### **4.1.4 MIBEL (MERCADO IBÉRICO DE ELECTRICIDADE; IBERIAN ELECTRICITY MARKET)**

The MIBEL Derivatives Market (authorised by Decree No 945/2004 of 28 July 2004) was created within the framework of an agreement between the Portuguese Republic and the Kingdom of Spain on the establishment of an Iberian electrical energy market which was signed in Santiago de Compostela on 1 October 2004.

The derivatives market is managed by the Iberian Energy Market Operator – Portuguese Pole (Operador do Mercado Ibérico de Energia – Pólo Português SA; OMIP), and transactions are settled by OMIClear (Sociedade de Compensação de Mercados de Energia SA), which acts as a clearing house and central counterparty for derivatives operations on MIBEL. The spot segment of the MIBEL market is managed by the Iberian Energy Market Operator – Spanish Pole (Operador del Mercado Ibérico de Energia – Polo Español; OMEL).

OMIP – the Portuguese pole of MIBEL – began to operate on 3 July 2006, with an agreement for the financial settlement of daily balances between the participating members of the MIBEL Derivatives Market being signed on 28 July 2006 between the Banco de Portugal and OMIClear. The financial settlement of

balances arising from MIBEL is performed through three institutions that act as settlement agents for this market.

## **4.2 CLEARING**

### **4.2.1 EURONEXT LISBON MARKET**

The clearing activities of LCH.Clearnet SA, in its capacity as the clearing house of the Euronext group, are subject to concerted supervision and coordinated oversight on the part of the authorities regulating the Euronext markets (Paris, Brussels, Amsterdam and Lisbon). The supervision and coordinated oversight of the clearing activities of LCH.Clearnet SA are based on a memorandum of understanding signed by all of the authorities involved – for Portugal, the Banco de Portugal and the CMVM. In the interests of effective coordination, the memorandum envisages the setting up of a clearing coordination committee – the Co-ordination Committee on Clearing (CCC) – to hold monthly meetings with representatives of all of the regulatory authorities of the Euronext markets.

LCH.Clearnet SA's performance of the roles of clearing house and central counterparty in Euronext Lisbon operations has separated the clearing and settlement functions previously performed by Interbolsa (see also Section 4.3.2).

### **4.2.2 PEX MARKET**

Operations directly carried out in the PEX market between counterparties may be settled either bilaterally between the buying member and the selling member, on a wholesale basis, or by the total quantity and price traded (all or nothing).

Operations resulting from the close of offers entered in the trading system are settled for each security, after the clearing of the buying and selling positions of every financial intermediary.

PEXSettle is the settlement system for securities operations carried out in the PEX non-regulated

market. It was created by an agreement signed on 9 August 2004 by three founding members, in line with the provisions laid down in Article 266 of the Securities Market Code, in order to settle operations carried out in the PEX market, as well as certain operations carried out outside this market.

PEXSettle is directly managed by the participants (under Article 287(2) of the Securities Market Code), and physical settlement (i.e. settlement of the securities leg of the transaction) of operations carried out in the PEX market is performed by a settlement agent participating in the market prior to financial settlement (i.e. settlement of the cash leg of the transaction).

The clearing house function is performed by PEXSettle's management, which calculates the settlement position of each participant.

PEXSettle operates in compliance with the PEX market rules as a non-regulated market registered with the Securities Market Commission (in particular Annex 9) and in line with the OPEX statutes.

The daily calculation of participants' balances is the responsibility of the management of PEXSettle. This body informs the Banco de Portugal, on a daily basis, of participants' balances to be financially settled in the SPGT. For this purpose, an agreement was signed between the Banco de Portugal and the management of PEXSettle on 30 December 2004 stipulating the conditions for the financial settlement of these balances.

To this end, each participant is required to open an account with the Banco de Portugal, under the conditions established in the relevant Regulations and Manual of Procedures.

For the purposes of financial settlement, the management of PEXSettle sends a Multilateral Settlement Matrix (Matriz Multilateral de Liquidação; MML) to the Banco de Portugal by 11.30 a.m. GMT on settlement day. The MML

includes the balances of the operations of each of the three original participants, which are to be settled via the payment system of the Banco de Portugal at 12.30 p.m. GMT.

If there are insufficient funds in the account of one or more participants for the execution of financial settlement, the Banco de Portugal immediately informs the management of PEXSettle and simultaneously cancels the operations. The management of PEXSettle calculates a new matrix, excluding the participant(s) with insufficient funds for financial settlement. This new matrix is sent to the Banco de Portugal by 2 p.m. GMT on the same day for immediate settlement.

The Banco de Portugal participates in the PEXSettle system by making its payment systems available for the financial settlement of participants' daily balances. Therefore, financial settlement occurs via the SPGT settlement platform, the Regulations and Manual of Procedures for which provide for finality and irrevocability of financial settlement.

## 4.3 SECURITIES SETTLEMENT SYSTEMS

### 4.3.1 MARKET ELECTRONIC TRANSFER SYSTEM (SITEME)

#### 4.3.1.1 Legal and institutional aspects

The SITEME is a securities settlement system owned by the Banco de Portugal (including a CSD, the legal framework of which is defined in Decree-Law 22/99 of 28 January 1999) and managed by the central bank's Market and Reserve Management Department. It is used by the Banco de Portugal to settle its own operations, operations on behalf of the Treasury related to Treasury bills, operations between credit institutions, and any operations involving money market securities deposited with the CSD.

As it is not an autonomous entity, the SITEME does not have its own financial resources or board of directors. However, services related to operations between participants are subject to

fees, which are specified in a specific price list based on the principle of cost recovery.

Currently, Treasury bills are the only securities deposited with the SITEME. The last tranche of certificates of deposit issued by the Banco de Portugal that were deposited with the SITEME were redeemed on 4 November 2004. Commercial paper, ECB debt certificates (none of which have yet been issued) and other tradable money market securities may also be deposited with this CSD.

Participants in the SITEME include institutions that are eligible for monetary policy operations and other participants authorised by the Banco de Portugal. Participants may terminate their membership of the SITEME whenever they see fit by simply notifying the Banco de Portugal of their decision. If a participant terminates its membership, the outstanding operations run until maturity.

SITEME rules on access and exit criteria are publicly disclosed in the Portuguese Official Gazette. The Banco de Portugal's notices and instructions regulating the SITEME are also published in the Official Gazette.

The SITEME is subject to internal audits by the Audit Department of the Banco de Portugal. These audits seek to verify the observance of rules and procedures and, where necessary, to propose changes to procedures. As a service provided by the Banco de Portugal, the SITEME falls under the remit of its Board of Auditors and is subject to an external audit by a specialised audit company.

#### 4.3.1.2 Operational features

The SITEME is a real-time DvP Model 1 system (according to BIS definitions),<sup>5</sup> providing intraday finality for all settled operations. The delivery of securities with intraday finality takes place during operating hours from 7 a.m. to 5.30 p.m. GMT through the continuous real-time gross settlement system for securities transactions.

Transfers of securities (and rights of ownership) are processed through the securities accounts held with the SITEME on behalf of the owners of the securities. These transfers from seller to buyer take place on a continuous real-time basis through the SITEME upon the debiting of the seller's settlement account and the crediting of the buyer's account. Final funds transfers take place in the form of debits and credits in cash accounts held with the Banco de Portugal.

Securities and funds transfers become final once the buyer of the securities and the receiver of the funds (for operations with cash settlement) have both been successfully credited.

There are no major risks for participants in the SITEME because it is mainly a DvP system (some forms of free-of-payment operation are also possible, but their use is limited) and because no short selling is allowed and RTGS procedures are in place. Since the SITEME does not provide for the lending of securities and no securities overdraft is possible, each institution wishing to sell securities must have them available in its securities account.

#### 4.3.1.3 Operational reliability

The Manual of Procedures of the SITEME includes an analysis of the potential risks. The major risks envisaged concern communications and the equipment for alternative systems, security of access to the system and its technical architecture. A detailed description of the system is available in the Manual, covering the following major aspects: (i) a system feasibility study; (ii) the functional and operational specifications of connections with participants; (iii) a logical and physical model of the system data; (iv) the analysis and specification of the IT components of the project; and (v) online help.

<sup>5</sup> Model 1 applies to systems that settle transfer instructions for both securities and funds on an individual basis, i.e. on a trade-by-trade basis, with the final transfer of securities from the seller to the buyer occurring at the same time as the final transfer of funds from the buyer to the seller (DvP).



Instructions to and from participants are transmitted using a remote terminal. A “point-to-point” telephone line system operates as a backup. Participants, as well as SITEME operators, use individual access keys to access the SITEME. For remote access, the network uses a website managed by the Banco de Portugal for which the data flows are encrypted.

A contingency plan and a disaster recovery centre are in place. In the event of a malfunction or breakdown, operations can be recovered and the continuity of the system’s operations ensured. This is integrated into the Business Continuity Plan of the Banco de Portugal.

#### 4.3.2 INTERBOLSA

##### 4.3.2.1 Legal and institutional aspects

Interbolsa was created in 1991, in accordance with the Securities Market Code. In 1993 it changed its status to a non-profit association, with the Lisbon Stock Exchange Association and the Oporto Derivatives Exchange Association holding equal stakes in it. In 2000 it became Interbolsa – Sociedade Gestora de Sistemas de Liquidação e de Sistemas Centralizados de Valores Mobiliários SA (the managing entity of securities settlement systems and centralised securities systems). Its objectives include protecting the rights of capital market participants (protecting investors’ rights and reducing risks), supporting market operators and promoting the development of the capital market.

Interbolsa, the private transferable securities centre owned by Euronext Lisbon (see Section 4.1.1), is used by the market to settle operations involving stocks, bonds and notes, and by the Banco de Portugal to settle Eurosystem credit operations collateralised by Treasury bonds and private paper. In addition to its tasks as a central securities depository (registration, deposits and safekeeping of securities) and as a settlement system, Interbolsa has also acted as the national numbering agency since 1996.

LCH.Clearnet SA’s role as a clearing house and central counterparty for Euronext Lisbon’s operations has separated the clearing and settlement tasks previously performed by Interbolsa (see Section 4.1.1), with LCH.Clearnet SA now being responsible for clearing. The settlement systems managed by Interbolsa are governed by the Securities Market Code, which, since late 1999, has regulated and defined the structure of the Portuguese capital market. It was approved by Decree-Law 486/99 of 13 November 1999, as amended by Decree-Laws 61/2002 of 20 March 2002, 38/2003 of 8 March 2003, 107/2003 of 4 June 2003 and 66/2004 of 24 March 2004.

The central securities depository and securities settlement system functions of Interbolsa are governed by the provisions of the Regulation pertaining to the CSD and the clearing and settlement system, by any applicable general legislation and by any provision which may be duly enacted in the future by authorised entities.

Interbolsa’s functions are:

- to establish, administer and operate the system for the registration and management of transferable securities and the system for depositing, safekeeping and managing fungible securities;
- to provide an adequate service for the administration and servicing of securities held, including corporate events, and the collection of funds from issuing entities (interest, dividends, etc.);
- to provide any other services of general interest to the securities market which are deemed appropriate and which are duly authorised at a future time;
- to operate the system connecting the CSD with financial intermediaries, issuing entities, stock exchanges and the central bank, and to ensure the settlement of all stock exchange transactions;



- to organise and manage the securities settlement systems; and
- to ensure security-related monetary transfers, inherent rights and guarantees.

The criteria for participation in Interbolsa are clearly defined in its regulations. To become participants, financial intermediaries are required to hold a settlement account with the central bank. For this purpose, they require proper authorisation from the central bank, and they must have the technical capability to connect to and use the services provided. The CMVM must also acknowledge their capabilities and authorise them to operate in the securities market and hold dematerialised securities on behalf of their customers. The participants in Interbolsa are banks, brokers, dealers, foreign institutions, the Banco de Portugal and the IGCP. In order to end its participation, a financial intermediary must have settled all pending trades.

Interbolsa is supervised by the CMVM.

#### 4.3.2.2 Operational features

In order to carry out securities transfers and to calculate the financial amounts in respect of the operations, as laid down in Interbolsa's regulations, two different settlement systems may be used:

- The general settlement system, which processes each operation twice: once during the day and again overnight. Settlement is carried out by netting stock exchange operations, operations in other regulated markets, operations in non-regulated markets, OTC operations and free-of-payment transfers.
- The real-time settlement system, which specialises in movements and calculations for immediate effect. This settles operations on a gross basis. It is mainly used for OTC operations and for the administrative transfer of securities.

Settlement finality is defined in Interbolsa's regulations in the same terms as in the Securities Market Code and in the Settlement Finality Directive. Settled transactions may not be reversed. There is no zero-hour rule in Portuguese legislation.

Intraday DvP settlement is possible for operations with the Banco de Portugal (T+0 and T+1) and for stock exchange operations (T+3) during operating hours – from 8.30 a.m. to 4.30 p.m. GMT for market operations and from 6 a.m. to 5 p.m. GMT for operations involving the Banco de Portugal.

DvP settlement ensures that securities are not delivered if the buyer does not pay. The securities are transferred to the buyer's account and remain blocked until a confirmation of successful payment is received from the SPGT, which is operated by the central bank. If no payment has been made, the operation is reversed and the securities are given back to the seller. The risk of failure on the payment side is minimised through the use of intraday credit facilities that are part of the payment system.

Settlement risk is managed by the netting procedure and by LCH.Clearnet SA as the central counterparty of Euronext Lisbon. The procedures applied in the event of insufficient securities are defined in Interbolsa's regulations, which are legally binding on all Interbolsa participants.

There is no custody risk when using securities deposited with Interbolsa. In compliance with the Securities Market Code, securities deposited with Interbolsa cannot be considered part of the CSD's assets, since they are owned by the beneficiaries and not by Interbolsa.

#### 4.3.2.3 Operational reliability

The data are fully backed up each day once the overnight batch cycle is completed. A copy of this backup is held off Interbolsa's premises, to be used if the disaster recovery site has to be activated. All of the system's data input and output are also kept on magnetic tapes for at

least five years. The disaster recovery site is equipped with at least the same processing power as Interbolsa's own processing system.

The system description is available in the operational and procedural documentation of the CSD. Technical documentation is available for systems analysts and programmers.

#### **4.4 USE OF SECURITIES INFRASTRUCTURES BY THE BANCO DE PORTUGAL**

The Banco de Portugal makes use of securities infrastructures (the SITEME and Interbolsa) for the physical settlement of assets used as collateral in Eurosystem monetary policy operations conducted with Portuguese counterparties, i.e. in monetary policy and intraday credit operations within payment systems.

When acting as a correspondent central bank within the CCBM, the Banco de Portugal also accepts transfers of securities from custodian bank accounts in the SITEME and Interbolsa to its own accounts in these two systems, in order to allow other NCBs of the Eurosystem to grant credit to their counterparties.





# SLOVENIA

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## LIST OF ABBREVIATIONS

BTS	Ljubljana Stock Exchange trading system – <i>Borzni trgovalni sistem</i>
ICS	Information and Control System
KDD	Central Securities Clearing and Depository Institution – <i>Centralna klirinško depotna družba</i>
LJSE	Ljubljana Stock Exchange
PTA	Payment Transactions Act
PHAM	Proprietary home accounting module
SBI	Slovenian stock exchange index – <i>Slovenski Borzni Indeks</i>
SIBPS	Slovenian Inter-Bank Payment System
SMA	Securities Market Agency
ZBS	Bank Association of Slovenia – <i>Združenje bank Slovenije</i>

## INTRODUCTION

As part of the payment systems reform which was completed in 2002, two pillars of the domestic payment systems were established in 1998. Banka Slovenije implemented an RTGS system, SIBPS (Slovenian Inter-Bank Payment System), for processing urgent and large-value credit transfers, and the Giro Clearing system for processing small-value retail payments. In their eight years of operation, both systems have proved to be very robust (from both operational and financial risk viewpoints), and Banka Slovenije has always recovered the system operating costs through fees charged to participants. Moreover, the fees have been lowered several times, in line with the principle of full cost recovery.

Within the banking sector, there have been no initiatives to establish an interbank payment infrastructure. Banks have focused on developing customer relationships, especially in the field of payment instruments. Thus, a set of new payment instruments have been introduced or further developed; notable among these are a special (preprinted) payment order and an electronic direct debit. However, the processing of these payment instruments is not organised within a fully fledged payment system, but rather as separate payment schemes, with the emphasis placed on the flow of information.

In the area of oversight, Banka Slovenije established its function in line with the requirements of the Core Principles for Systemically Important Payment Systems. These principles were adopted in 2003 by Banka Slovenije's Governing Board as standards for performing payment systems oversight.

When Slovenia joined the European Union in May 2004, integration processes in the field of payment systems and settlement at the EU level became of vital importance for the country. Again, Banka Slovenije took the lead and prepared its policy on integration with EU payment systems.

Given the uncertainty regarding the time of implementation of TARGET2, a fallback solution was developed to help bridge the period between the obligation to participate in TARGET (upon adoption of the euro on 1 January 2007) and the start of TARGET2 operations. Accordingly, Banka Slovenije and Slovenian banks participate in TARGET via the Deutsche Bundesbank's RTGSplus system, and the SIBPS system ceased to operate on 31 December 2006.

In the field of small-value cross-border payments, Banka Slovenije has offered Slovenian banks a single entry point to the EBA's STEP2 system and has thus fulfilled the European Payments Council's request to ensure the receiver capability for Slovenia. Eleven banks have been participating in STEP2 indirectly via Banka Slovenije since November 2004, while Banka Slovenije is a direct STEP2 participant and a prefund participant in the EBA's EURO1 system.

Preparations for the Single Euro Payments Area (SEPA) are being carried out under the umbrella of the Bank Association of Slovenia (ZBS), which has representatives in the European Payments Council's working groups. However, the SEPA decision-making process and activities are coordinated with Banka Slovenije.

The securities settlement system of the Central Securities Clearing and Depository Institution (KDD) follows best practices and international standards and recommendations. The system's operational compliance with the standards for the use of EU securities settlement systems in ESCB credit operations was verified by the European Central Bank in 2006. Consequently, the KDD can be used as a depository for domestic debt securities which are recognised as eligible assets in ESCB credit operations.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The main institutions governing, regulating, supervising and overseeing the Slovenian financial markets are the national central bank (Banka Slovenije), the Ministry of Finance and the Securities Market Agency (SMA).

Banka Slovenije is part of the European System of Central Banks. The provisions of EC directives and regulations are being implemented in the national legal framework.

The current payments framework is defined by the Payment Transactions Act (PTA; Official Gazette of the Republic of Slovenia No 30/2002, as amended), which defines the basic features of domestic and cross-border payment operations, as well as the minimum conditions for payment service providers in Slovenia. The PTA, the Law on Banka Slovenije (Official Gazette No 58/2002, as amended) and the Banking Act (Official Gazette No 131/2006) define the competencies of Banka Slovenije, which include supervising payment services, issuing regulations and licences for payment service providers, defining settlement rules and overseeing payment systems.

Other issues regulated by the PTA are:

- general (minimum) terms and conditions applying to the provision of payment services;
- relationships between institutions performing payment operations and the legal entities or private individuals holding accounts with these institutions (by defining the minimum obligatory elements of the contractual relationship between them);
- provisions implementing Directive 97/5/EC (on cross-border credit transfers), Directive 98/26/EC (on settlement finality) and Directive 2000/46/EC (on electronic money);

- conditions for carrying out settlement functions; payment systems may be managed by Banka Slovenije, a clearing house or any participant in the payment system holding a licence issued by Banka Slovenije; and

- Banka Slovenije's oversight of payment systems and supervision of the institutions providing payment services, in accordance with the Law on Banking and the Law on Banka Slovenije.

A variety of laws contain provisions related to payment transactions.

The Penal Code of the Republic of Slovenia (Official Gazette No 63/94, as amended) contains provisions on fraud involving certain payment instruments (cheques and cards) and money laundering. In addition, there is a separate Money Laundering Prevention Act (Official Gazette No 79/2001, as amended). Regarding the protection of users of payment services, provisions of the Consumer Protection Act (Official Gazette No 20/98, as amended) apply.

Rules regarding insolvency proceedings against participants in payment systems, implementing related provisions of Directive 98/26/EC and providing exemption from general rules, are defined also in the Act on compulsory settlement, bankruptcy and liquidation (Official Gazette No 52/99, as amended).

With regard to securities markets, the Securities Market Act (Official Gazette No 56/99, as amended) provides the legal basis for the functioning of the capital market in Slovenia. It contains provisions regarding the issuing and trading of securities and the role of the stock exchange and defines the competencies of the Securities Market Agency as a supervisory authority.

Regulation (EC) No 2560/2001 on cross-border payments in euro harmonising the fees of cross-border and domestic payments and Regulation (EC) No 1781/2006 defining rules on information on the payer are also applied.



## 1.2 THE ROLE OF BANKA SLOVENIJE

### 1.2.1 GENERAL RESPONSIBILITIES

Pursuant to Article 152 of the Slovenian Constitution, the national central bank is independent and must answer directly to the Slovenian parliament. This Article also stipulates that the national central bank is established by law. Accordingly, Banka Slovenije was established as the national central bank by the Law on Banka Slovenije adopted on 25 June 1991. In 2002 a new Law on Banka Slovenije was adopted which introduced the necessary changes owing to EU entry. As a result of adopting the euro and joining the Eurosystem, certain changes to the Law were also introduced in 2006.

According to the Law on Banka Slovenije, Banka Slovenije is a self-governing body, which is independent in terms of its decision-making, the implementation of monetary policy and the implementation of the other tasks set out in the Law on Banka Slovenije and related legislation.

Banka Slovenije's primary objective is price stability. In line with the objective of price stability, Banka Slovenije supports the general economic policy of the government and strives for financial stability.

Banka Slovenije is authorised to issue banknotes and to perform specific tasks, e.g. to design and implement monetary policy; to put in place and implement monetary control; to be responsible for the general liquidity of the banking system; to participate in transactions in foreign exchange and financial markets; to accept deposits of banks and savings banks; to open accounts for banks and savings banks; and to regulate payment systems. Since the adoption of the euro, some of these tasks (according to the Law on Banka Slovenije) fall within the competence of the ESCB, in line with the Statute of the ESCB and of the ECB. Banka Slovenije is also authorised to perform other tasks defined in legislation: it may hold accounts and perform payment services for qualified institutions

(state bodies, public entities, participants in the money market, other financial institutions, the KDD and stockbrokers) and is explicitly authorised to perform oversight functions for payment and settlement systems. On the basis of the Law on Banka Slovenije, Banka Slovenije administers financial and fiscal matters for the state through the single Treasury account which is held with Banka Slovenije but kept separate from Banka Slovenije's own financial assets.

Banka Slovenije also performs the tasks imposed by the Law on banking and the Foreign Exchange Transactions Act.

It issues direct regulations (e.g. decrees and rules), performs on-site inspections and can impose sanctions where necessary. Banka Slovenije supervises banks and savings banks from the perspective of their participation in the country's payment systems. The PTA extends the applicability of these supervisory competencies of Banka Slovenije to other payment service providers and to e-money institutions.

### 1.2.2 PAYMENT SYSTEMS REGULATION AND OVERSIGHT

In exercising its oversight function, Banka Slovenije seeks to ensure the systemic stability of payment systems by containing exposure to systemic risk and promotes the efficient operation of these systems and the security of payment instruments used by the public.

The Law on Banka Slovenije provides the general basis for performing payment systems oversight, whereas the regulation of payment systems and the oversight function of Banka Slovenije are set out in detail in the PTA. With the adoption of this Act in 2002, Banka Slovenije became formally responsible for the regulation and oversight of all payment systems (private systems and those systems operated by Banka Slovenije) operating in the country.

According to the PTA, Banka Slovenije has the authority to regulate settlement between the members of payment systems, stipulating in particular the terms for executing settlements,

rules on the means of managing financial and operational risks which must be provided by the payment systems, the reporting requirements for the execution of settlements, the terms for providing the payment system management services and other conditions that must be fulfilled by a clearing company. On this basis, Banka Slovenije issued its own decree, thereby providing a further level of definition of the above-mentioned issues in line with its payment systems policy.

As mentioned above, on the basis of the PTA, Banka Slovenije also performs oversight of the payment system in order to verify that the payment systems fulfil the conditions stipulated by the Act and by the (relevant) Core Principles for Systemically Important Payment Systems, which were adopted by the Governing Board of Banka Slovenije in 2003 as the basis for the oversight role of Banka Slovenije.

### **1.2.3 THE OPERATIONAL ROLE OF BANKA SLOVENIJE**

Banka Slovenije established SIBPS and the Giro Clearing system (a small-value payment system with settlement on a multilateral net basis) in 1998. Both systems were operated by Banka Slovenije. After the adoption of the euro, SIBPS ceased to exist, and large-value domestic payments, as well as cross-border payments, have since been carried out via TARGET. Banka Slovenije is a direct participant in Giro Clearing and TARGET, and acts as a clearing and settlement agent for Giro Clearing.

Banka Slovenije also provides settlement services for certain other retail payment systems operating on a multilateral net basis (e.g. for payment card transactions), where it acts as a settlement agent automatically debiting net debtors and crediting net creditors on the basis of the report from the clearing agent.

### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

As regards its operational role, Banka Slovenije, together with the KDD and the SMA, have established a mechanism for the settlement of

the cash leg of securities transactions using central bank money, enabling DvP Model 2 to function for organised market trades and DvP Model 1 to work for OTC trades via SIBPS (after the adoption of the euro, via TARGET). The KDD keeps an account in TARGET, enabling it to act as a settlement agent for the stock exchange and for OTC trades. According to the provisions of the Securities Market Act, which require customer funds to be kept separate from securities market participants' own funds, certain cash accounts of market participants are also held with Banka Slovenije.

Banka Slovenije is also involved in the oversight of the KDD. According to the latest amendments to the Law on Banka Slovenije, Banka Slovenije's tasks also include the oversight of securities settlement systems. Since the laws regulating securities markets and clearing and settlement provide the SMA with specific regulatory and supervisory powers with regard to the securities settlement system (KDD), Banka Slovenije and the SMA defined their respective roles in this field in a memorandum of understanding, specifying their responsibilities and the exchange of information with regard to the KDD.

Banka Slovenije, as a user of the system, also assessed the KDD from a user perspective within the framework of ESCB credit operations using the standards for the use of EU securities settlement systems in ESCB credit operations in the preparations for joining the euro area. It will continue to monitor the KDD in this regard.

### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

Banka Slovenije cooperates with the Bank Association of Slovenia (whose role is described in Section 1.3.2), especially with regard to the organisational and technical procedures related to payment instruments and the implementation of the SEPA.

On the basis of the memorandum of understanding between the two institutions, Banka Slovenije also cooperates with the SMA

with regard to the performance of its oversight function for the KDD.

As required, Banka Slovenije also coordinates its actions and exchanges information with certain governmental bodies, such as the Ministry of Finance, the Agency for Public Legal Records and Public Services, the Tax Office and the Competition Protection Office.

#### **1.2.5.1 Integration of small-value payment systems**

In order to achieve greater integration of small-value payment systems in Slovenia, Banka Slovenije has been active in promoting interbank cooperation in this area, with the aim of handing over leadership of all future activities in this area to the commercial sector.

The two main groups of activity in this area are: (i) the establishment of an effective organisational and decision-making structure for national payment systems, i.e. the Payment Services Committee (chaired by a representative of Banka Slovenije, thereby ensuring that it gains insight into the activities of the banking sector and is in a position to influence the decision-making process); and (ii) the setting up of a national automated clearing house as a technical infrastructure, which is a prerequisite for the integration of small-value payment systems. The latter activity (as well as all other activities) is very much related to the implementation of the SEPA.

#### **1.2.5.2 Cooperation in the field of standardisation**

Banka Slovenije also coordinates activities to standardise payment instruments, with the ultimate goal of achieving straight-through processing (STP).

Since the SWIFT network has been used to send credit transfers via payment systems, Banka Slovenije has decided to base all electronic payment orders on SWIFT messages and standards. On the basis of the above-mentioned standards, a paper-based payment order has also been designed to facilitate optical

processing and to incorporate all of the data from the electronic form.

Banka Slovenije has adopted minimum standards enabling the automated processing of payment instructions by banks, but these standards may be developed further in order to meet banks' internal requirements. A 16-digit TRN (transaction reference number) has been developed as a way of standardising book-entry inputs in banks.

Banka Slovenije has also established a database of all transaction accounts kept by credit institutions. It maintains this database (the Transaction Account Register), but it is the credit institutions holding the accounts that are responsible for the data. The Register contains data on account numbers and account holders and serves several purposes as defined in the PTA and the Decree on the establishment of the Transaction Account Register. However, the primary aim of the Register is to enable the control of the beneficiary account and the provision of account holder data to legally entitled users.

An important achievement in the field of standardisation was the introduction of the 19-digit IBAN. Designed to allow automatic processing of bank account identifiers and easier routing of payment transactions, a 15-digit bank account number (BBAN) has been used for all domestic payments since mid-2002. The IBAN and BIC are shown also on the customer's account statement.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 SECURITIES MARKET AGENCY**

The Slovenian Securities Market Agency is the authority empowered by the Securities Market Act (see Section 1.1) to issue licences to investment firms (brokerage companies and banks providing investment services in the securities field), investment funds and management companies, the Ljubljana Stock Exchange (LJSE) and the KDD. It also authorises securities issuers within the context

of public offerings of securities and, under the Takeovers Act, authorises participants other than securities issuers to buy the securities offered. The SMA supervises securities market operations and market participants.

### **1.3.2 BANK ASSOCIATION OF SLOVENIA**

The Bank Association of Slovenia was established to make the banking business more efficient in areas where cooperation between banks is beneficial.

The primary objectives of the ZBS are to promote the common interests of its members in relation to the state and financial authorities; to support the uniformity, modernisation, organisation, working technology and standardisation of all financial operations conducted by its members; to provide financial and legal consulting; to formulate R&D projects in the area of financial operations and banking; to organise professional training of banking personnel; to organise information and publishing activities; and to monitor the implementation of EU regulations in the banking environment.

### **1.3.3 BANKART**

Bankart is an important payment processing centre. It was founded in December 1997 and is owned by the banks.

Bankart's functions are agreed upon among the banks, in areas where common interest prevails over competition. It also provides commercial services to any bank that is not a shareholder.

It commenced operations in April 1998 and currently performs the following services (see also Sections 3.3.2 and 3.3.3):

- ATM/POS processing and clearing of ATM/POS transactions;
- processing of payment cards; and
- processing of other standardised payment instruments (special payment orders, special paper-based debit orders, direct debits, direct credits and standing orders).

### **1.3.4 LJUBLJANA STOCK EXCHANGE**

The Ljubljana Stock Exchange was established in 1989. It is a self-regulating organisation licensed to operate by the SMA, providing an organised market-place for securities (shares, bonds and government securities) together with an efficient technological platform and the other conditions required for the smooth and equitable operation of the securities market. The LJSE's operations are described in more detail in Section 4.1.1.

### **1.3.5 CENTRAL SECURITIES CLEARING AND DEPOSITORY INSTITUTION**

The Central Securities Clearing and Depository Institution was established in January 1995 by the Securities Market Act to provide facilities for the clearing of securities transactions. The KDD is licensed to operate by the SMA, which approves its statute and operating rules as well as its by-laws and fees. The KDD is a self-regulating corporation operating on a not-for-profit basis. It aims to recover its costs in full by imposing fees and other charges on its members. Its shareholders include brokerage firms, banks, companies established in accordance with the Investment Companies Act and other legal entities authorised by the SMA.

The KDD operates in accordance with the Securities Market Act and Slovenian company law. The rules and procedures governing the rights and obligations of the participants and the duties of the KDD are set out in the KDD's operating rules, as well as in various procedures governing separate areas of operation.

The KDD's operations are described in detail in Section 4.3.

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

On 1 January 2007 Slovenia joined the euro area. The Slovenian tolar (SIT) was thus replaced by the euro. The euro banknote series comprises seven different denominations: €5,

€10, €20, €50, €100, €200 and €500. The euro coin denominations are: 1, 2, 5, 10, 20 and 50 cent, and €1 and €2.

Demand for cash by the non-banking sector is increasing nominally, but there has been very little change in the demand for cash over the last few years in real terms; however, seasonal effects cause considerable fluctuations in the use of cash over the course of the year. In particular, cash holdings can vary substantially within the month (increasing on days that pensions, wages, salaries, etc. are paid) and within the year (more cash is used during the summer holiday period and at the end of the year, while there is less in circulation at the beginning of the year and in the autumn). In view of the enormous increase in the amount of cash in circulation at the end of each month (when pensions are paid), it can be concluded that cash use is closely linked to population structure (e.g. older people use more cash).

The payment habits of the population are steadily changing. Cash is mostly used by private individuals to pay for goods and services, while companies are obliged not to use cash except for very small-value payments. Though the vast majority of payments are, in volume terms, still made using cash, the more frequent use of other payment instruments, especially payment cards, has reduced the need for it. The value of banknotes and coins in use by non-banks rose from €0.65 billion in 2001 to €0.76 billion in 2005, while the share of currency in circulation (in use by non-banks) in M1 fell from 13.5% in 2001 to 10.9% in 2005. The use of cash is decreasing and is expected to diminish even further in the future.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Credit transfers are still the dominant form of non-cash payment in Slovenia. They are used in particular by legal entities and investors to settle their contractual financial obligations, as such persons are obliged not to use cash except for very small-value payments. Payment orders

are presented electronically or in paper form to banks and savings banks by all customers.

A common and widely used paper payment instrument in Slovenia is the special payment order, a paper instrument created to make paper-based payments more efficient for all parties involved: banks, customers and companies (especially public utility companies). The special payment order is a preprinted payment order with an imprinted OCR line, which facilitates OCR reading and therefore automatic processing of payments submitted in person at banks and savings banks.

Internet banking is growing rapidly. Credit institutions encourage the use of electronic payments by charging lower fees for them, and although the volume of paper-based credit transfers still exceeds that of non-paper-based payments, the value of non-paper-based payments is significantly higher. It is estimated that more than 80% of legal entities make their payments electronically.

### 2.2.2 CHEQUES

Cheques in Slovenia have rarely been used since the procedure for the encashment of cheques changed in 2000 (they are no longer guaranteed, so the bank will not pay the retailer if the issuer does not have sufficient funds on his/her account). The total volume of cheques in 2005 was only 1.35 million, and the total value was €0.114 billion. The banks are not interested in developing or promoting cheques owing to the added credit risk and substantial administrative costs involved.

### 2.2.3 DIRECT DEBIT

Direct debit was only introduced in Slovenia in 2003 and is not as commonly used as other payment instruments (e.g. credit transfers and payment cards). In 2005 the total volume of direct debits in Slovenia was 35.38 million, representing a total value of €1.87 billion.

In the direct debit scheme, the relationships between the parties – banks, processor, customers and payees – are still not properly

legally defined, and the interbank agreement (accepted in 2003) on direct debits has yet to be upgraded by the banks to meet SEPA requirements in cooperation with Banka Slovenije and Bankart as the processor.

#### 2.2.4 PAYMENT CARDS

There is still significant growth in the use of payment cards, as most people who have a bank account also hold at least one payment card. ATM and POS networks in Slovenia are widespread and well-distributed.

In 2001 70.32 million payments were made using cards issued in the country; in 2005 96.6 million such transactions were effected. In 2001 the total value of card payments was €1.91 billion, while in 2005 it reached €3.06 billion. This trend is expected to continue, leading to even broader use of payment cards.

##### *Debit cards*

Debit cards issued by credit institutions can be used at ATMs and POS terminals. The most widely used card with a debit function in Slovenia is the co-branded BA/Maestro card.

##### *Credit cards*

The number of credit cards issued by the major card organisations (Eurocard, MasterCard, Visa, American Express and Diners Club) has also grown significantly in recent years. These cards are issued by many credit institutions as contractors to the principal and are widely accepted in Slovenia; in addition, two major Slovenian banks are issuing their own brand of credit card.

##### *Retailer cards*

These are cards issued by non-credit institutions (mostly petrol and retail companies) and are generally used for making payments on the premises of the issuer.

##### *Prepaid cards*

To date, only single-purpose prepaid cards have been issued in Slovenia, such as telephone cards and toll cards. Although there is currently no domestic e-money scheme, multi-purpose

prepaid cards issued by an international e-money scheme (i.e. PaySafeCard) are already available in Slovenia.

One bank has announced that it will introduce prepaid debit cards.

#### 2.2.5 OTHER PAYMENT INSTRUMENTS

Other payment instruments include traveller's cheques. Most banks issue traveller's cheques in cooperation with foreign companies, the most common being Thomas Cook and American Express.

### 2.3 RECENT DEVELOPMENTS

#### 2.3.1 NETWORK/SOFTWARE-BASED PRODUCTS

All banks and savings banks have introduced internet banking, enabling their customers to make payments via the internet, consult their account balances, view the status of payments and access other products and services offered by the banks (e.g. various tools calculating annuities and interest on deposits and loans). Other kinds of home banking (e.g. telephone banking) have been losing market share since the introduction of electronic banking.

Following Slovenia's accession to the EU, several international e-money schemes (e.g. PayPal and PaySafeCard) have become available in Slovenia. There is no domestic e-money scheme.

However, one domestic mobile phone operator (Mobitel) is offering its customers the possibility of paying for goods and services via the internet, at vending machines and at terminals by using a mobile phone. The service is only available to mobile phone subscribers, while additional conditions (e.g. opening an account with a bank) apply for mobile phone prepaid users. The mobile phone operator periodically charges its customers for goods and services purchased in bills for phone services.



### 2.3.2 POLICY APPROACH

Slovenia was one of the first ten European countries to regulate electronic commerce in accordance with the new EC directives, guidelines and practices. The Electronic Commerce and Electronic Signature Act, which came into force in 2000, regulates this new area for companies, individuals and state institutions.

With the implementation of the SEPA in 2008, it is expected that the existing domestic payment schemes/instruments will change significantly. While some of them will continue to exist and will comply with SEPA standards, others will be abolished. In the SEPA national migration plan for Slovenia, banks (in close cooperation with the Bank Association of Slovenia) have committed themselves to implementing SEPA-compliant payment instruments.

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

With regard to large-value payments, there is currently no large-value payment system in Slovenia. However, the national connection to TARGET is implemented via “Fallback solution – Option 3”, with the Deutsche Bundesbank as the service provider. Besides being hosted in the German RTGS system as a core processing platform, Banka Slovenije also operates its proprietary home accounting module (PHAM), mainly for the settlement of ancillary systems and of standing facility transactions after TARGET closes.

As regards low-value payments, the Giro Clearing system processes domestic payments of up to €50,000. The system was introduced in October 1998, prompted by the need to introduce a retail payment system. Giro Clearing is a multilateral net system and net positions arising from these clearing cycles are settled via PHAM in five clearing cycles.

Besides the Giro Clearing system, there are several other domestic retail payment systems, the operation of which is in the domain of the banking community, with Banka Slovenije acting as a settlement agent only. These systems include the processing of retail credit and debit payment instruments (at the Processing Centre) and national card-based payment systems.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

By 1 January 2007, the date of the adoption of the euro, the Slovenian interbank real-time gross settlement system was completely transformed.

To allow the Slovenian banking community to participate in TARGET, a combination of host foreign RTGS systems and local infrastructure is used. The host RTGS system is the German TARGET component, RTGS<sup>plus</sup>. PHAM is the local infrastructure. In order to facilitate the link between RTGS<sup>plus</sup> and PHAM, a special interface is used: the liquidity bridge module.

As RTGS<sup>plus</sup> requires liquidity to be deposited (overnight) on separate accounts, Banka Slovenije maintains home accounts for Slovenian participants in PHAM.

#### 3.2.1 OPERATING RULES

The host RTGS system, RTGS<sup>plus</sup>, is governed on the basis of a published set of terms and conditions, which are in line with the ECB’s TARGET Guideline. The terms and conditions are also applicable to the Slovenian participants. As the operator of RTGS<sup>plus</sup>, the Deutsche Bundesbank has published special conditions for the Slovenian participants that supplement the existing terms and conditions.

Banka Slovenije has also adopted a number of legal acts that establish its role as a national central bank in relation to the Slovenian participants. National acts regulate particularities of the Slovenian participants and of the national infrastructure (e.g. PHAM).



In order to formalise the division of responsibilities between the operator of the RTGS system (the Deutsche Bundesbank) and the home central bank (Banka Slovenije), a special agreement (“Agreement between the Deutsche Bundesbank and Banka Slovenije with regard to the remote participation of Banka Slovenije and the Slovenian participants in RTGS<sup>plus</sup> as from the adoption of the euro by the Republic of Slovenia”) has been signed by both parties.

### 3.2.2 PARTICIPATION IN THE SYSTEM

Access to RTGS<sup>plus</sup> is governed by the terms defined in the TARGET Guideline and the terms and conditions issued by the Deutsche Bundesbank. Compliance with both acts is obligatory for the Slovenian participants.

The Slovenian participants must meet special conditions set by Banka Slovenije in its capacity as a national central bank. These special conditions define criteria for opening and maintaining a home account in PHAM. They also require a participant to be a participant in RTGS<sup>plus</sup> and to have adequate technical resources for operations and contingency procedures.

There were 22 direct participants in RTGS<sup>plus</sup> on 1 January 2007 (17 banks, three savings banks, Banka Slovenije and the KDD). Three other banks were indirect participants in the system, holding transaction accounts with direct participants, which act as their agents.

### 3.2.3 TYPES OF TRANSACTION HANDLED

RTGS<sup>plus</sup> is used mainly for important domestic and cross-border large-value payments which must be settled in gross value, in real time and safely. These payments include transfers related to money market transactions, funds transfers between Banka Slovenije and the banks (open market operations and cash delivery), and interbank and urgent customer payments. Only the settlement of ancillary systems (i.e. the Giro Clearing system and national card-based payment systems) is executed in PHAM.

There is a limit to the maximum value of domestic payments that can be processed in other complementary (i.e. retail) payment systems (Giro Clearing system, Processing Centre and national card-based payment systems), which stands at €50,000. Payments of a value below €50,000 may also be settled via RTGS<sup>plus</sup> if they are considered urgent.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The operating hours applicable for the Slovenian participants are the operating hours of RTGS<sup>plus</sup> as defined by the terms and conditions stipulated by the Deutsche Bundesbank. They are the same as the TARGET operating hours, except in exceptional cases where the Deutsche Bundesbank may extend the closing time.

The standing facility transactions of the Slovenian participants are settled in RTGS<sup>plus</sup> during the TARGET operating hours and in PHAM after TARGET has closed.

The operating days for the Slovenian participants are the same as those defined for the TARGET system in the TARGET Guideline. On national holidays which are not TARGET holidays, the national infrastructure operates, while the Slovenian participants are free to choose the level of their activity.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

All domestic and cross-border customer and interbank payments, including critical payments (e.g. monetary transactions and the cash leg of securities settlement systems), are executed via the German TARGET component, RTGS<sup>plus</sup>. The Slovenian participants use SWIFTNet infrastructure to connect to RTGS<sup>plus</sup>.

The only exception is the settlement of low-value ancillary systems, which is carried out locally in PHAM. PHAM is envisaged to be used also as a contingency vehicle, in the event of a malfunctioning of RTGS<sup>plus</sup>, for all critical domestic transactions that are to be settled in RTGS<sup>plus</sup> in normal day-to-day business (e.g. monetary transactions and securities settlement transactions).

For the purpose of depositing the liquidity of the Slovenian participants, home accounts are maintained in PHAM. The module provides basic functions for account management (e.g. opening/closing of the accounts, providing information on balances to the Slovenian participants and providing end-of-day information for the general ledger).

In order to transfer liquidity from the Slovenian participants' home accounts with Banka Slovenije to their settlement accounts and vice versa, a special purpose interface (software application) called the liquidity bridge module is used. All communication between PHAM and RTGS<sup>plus</sup> via this module is facilitated by the SWIFTNet infrastructure.

The Slovenian participants can use all functionalities of the ICS (Information and Control System) module offered by the Deutsche Bundesbank. The ICS module facilitates the monitoring and management of payment processing in real time. Participants can use this module to manage payments and liquidity and as a backup module for contingency purposes.

Backup procedures and systems are readily available to the Slovenian participants, enabling limited payment processing until the systems have been recovered. Backup procedures and systems for Slovenian participants are offered by both the Deutsche Bundesbank and Banka Slovenije in order to cater for the malfunctioning of either national central bank's system (component).

### 3.2.6 SETTLEMENT PROCEDURES

Settlement procedures, including queuing and gridlock resolution, used by the Slovenian participants are functionalities of RTGS<sup>plus</sup>. Payment transfers entered in RTGS<sup>plus</sup> are settled and booked in the settlement accounts of the account holders in real time if certain criteria for "express" or "limited" payments are met. For "express" payments, the criterion of adequate liquidity is applied. For "limited" payments, besides the adequate liquidity

criterion, the criterion of a predefined limit (maximum daily net outflow to other participants) is also applied. Payment transfers entered in the system are irrevocable and final as soon as they are debited in the settlement account.

Account holders can also specify earliest and latest settlement times for individual payments. A payment in a queue will not be executed earlier or later than the indicated time. Sending a payment order for settlement on a future value date is not possible.

An account holder can use the ICS module to manage a payment queue, gain insight into the outgoing and incoming payment queues, remove a payment from the outgoing queue and change the order (priority) of queued outgoing payments.

RTGS<sup>plus</sup> periodically attempts, by applying a few available algorithms, to simultaneously settle queued payments. Simultaneous settlement is made if the queued payments which qualify for settlement can be settled, subject to funds being available.

Payments which have not been executed by the end of the day are automatically cancelled by the system at 6.30 p.m. CET, when the last algorithm is run. The originator is notified of the cancellation of the payment.

### 3.2.7 CREDIT AND SETTLEMENT RISK

Given that the settlement medium is central bank money and no payment can be processed if there is a shortage of funds in the settlement account being debited, settlement risk is managed effectively.

Sources of liquidity for Slovenian participants are the high level of mandatory reserves and the collateralised intraday credit (introduced in 2002) which Banka Slovenije offers against pledged securities.

### 3.2.8 PRICING

The Slovenian participants are charged transaction fees for transactions processed in RTGS<sup>plus</sup> as determined under the RTGS<sup>plus</sup> terms and conditions issued by the Deutsche Bundesbank. For RTGS<sup>plus</sup> transactions, a regressive tariff scheme is being used. The TARGET fee structure applies to Interlinking payments and these fees are charged by the Deutsche Bundesbank as defined in the TARGET Guideline. The Deutsche Bundesbank invoices Banka Slovenije for the transactions of both Banka Slovenije and the Slovenian participants and submits the billing information for each Slovenian participant to Banka Slovenije. Banka Slovenije pays the transaction fees both for itself and for the Slovenian participants, which later reimburse Banka Slovenije.

Additionally, Banka Slovenije charges a fee of €0.92 for each transaction debited in PHAM. The transaction is usually a liquidity transfer to RTGS<sup>plus</sup>.

There are neither entrance fees for new participants, nor annual membership fees for existing participants. All communication (i.e. SWIFT) and infrastructure costs must be paid by the participants themselves.

Penalty fees are incurred if certain exceptional activities are required (e.g. manual interventions), starting from €62.55 for a common account transfer entered from Banka Slovenije's user interface.

### 3.2.9 STATISTICAL DATA

In 2006 approximately 1.55 million domestic transactions, with an approximate value of €317 billion, were settled through the former national RTGS system.

On average, some 6,214 domestic transactions, totalling €1.26 billion, were settled daily, although on peak days both volume and value could be up to three times higher than the average. The average value of a payment in 2006 was €202,512.

The figures for 2007 are not expected to be comparable with the 2006 figures, as two conceptual changes have been implemented since the beginning of 2007. The present RTGS infrastructure (TARGET) processes cross-border and domestic interbank transactions (i.e. not only domestic interbank transactions, as was formerly the case). At the beginning of 2007 there was also an increase in the threshold between small and large-value payments, from €8,346 to €50,000, which is also the maximum value that can be processed in the Giro Clearing system. A large share of the payments processed in the RTGS system in 2006 are expected to be processed in the Giro Clearing system in 2007 as a consequence.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 GIRO CLEARING SYSTEM

In October 1998 the Giro Clearing system was implemented for the processing of small-value payments as a multilateral net payment system. Its legal framework is directly established in the Regulation on operating the Giro Clearing system, which also defines Banka Slovenije as the clearing and settlement agent.

In anticipation of the adoption of the euro and the execution of domestic payments in the TARGET system, Banka Slovenije made changes in 2006 to the Decision on maintaining the Giro Clearing system and to the Regulation on operating the Giro Clearing system.

#### *Settlement of obligations and claims arising from clearing*

With the adoption of the euro on 1 January 2007, Banka Slovenije no longer managed its own RTGS system. Therefore, the settlement of the net positions of the Giro Clearing system is performed in PHAM via the domestic accounts with Banka Slovenije. These accounts are defined in detail in the Regulation on operating the Giro Clearing system.

### **Limit increase for credit payments submitted to Giro Clearing**

Banka Slovenije raised the limit for credit payments that can be submitted to the Giro Clearing system by Slovenian participants in order to bring it into line with the limit in STEP2. In relation to this, the limit in the Decision on maintaining the Giro Clearing system stands at €50,000 from 1 January 2007 onwards.

### **Rules and procedures**

Banka Slovenije has adopted the rules and procedures of the Giro Clearing system, which are legally binding on all participants. These rules include a daily timetable for the system's operations, the clearing and settlement procedure, responsibilities of participants, responsibilities of Banka Slovenije, technical requirements which participants must meet, and the definition of finality and irrevocability of payments. The message standards and contingency procedures have also been prepared and are legally binding on all direct participants in the Giro Clearing system.

### **Participation in the system**

The rules and procedures of the Giro Clearing system also define access criteria which are public. These criteria state that direct participants in the system may be domestic banks and savings banks licensed by Banka Slovenije, EU-based banks or their subsidiaries, or subsidiaries of non-EU foreign banks having approval from Banka Slovenije, all holding home accounts with Banka Slovenije. The access criteria also require participants to have adequate technical, organisational and human resources for normal and contingency operations.

Participants in the system are the same as in RTGS<sup>plus</sup> and PHAM, with the exception of the KDD, which only participates in RTGS<sup>plus</sup> and PHAM.

### **Types of transaction handled**

The use of a standard SWIFT format ensures compatibility with RTGS<sup>plus</sup>, i.e. the message

format is the same, meaning that payments for both systems are prepared in the same way and then submitted to the appropriate system depending on their value and/or urgency. As at the end of 2006 the Giro Clearing system supported SWIFT MT 103, MT 103+ and MT 202.

The Giro Clearing system only processes credit payments, and these may not exceed the limit set by Banka Slovenije (currently €50,000).

### **System operation**

The system is open for business from 7 a.m. to 4.30 p.m. CET every working day, except on national and TARGET holidays. A business day in the Giro Clearing system consists of ten clearing cycles, of which five are for information (at 9 a.m., 11 a.m., 1 p.m., 3 p.m. and 4 p.m. CET) and five are settlement cycles (at 8 a.m., 10 a.m., 12 p.m., 2 p.m. and 4.30 p.m. CET). The timetable at the end of the business day can only be changed in extraordinary circumstances, and only by a decision of Banka Slovenije, acting as system operator.

### **Transaction processing environment**

For the purposes of interbank communication within the Giro Clearing centre at Banka Slovenije, Banka Slovenije has established a private network, BSNet, which is maintained and upgraded by Banka Slovenije. This network connects all banks and savings banks which submit batches of small-value credit payment orders to Banka Slovenije. These batches are then collected by the clearing centre at Banka Slovenije on an hourly basis. As of the beginning of 2006 banks are allowed to use SWIFTNet infrastructure instead of BSNet for the purpose of interbank communication.

### **Operational and settlement procedures**

According to the timetable of the business day, the system collects batches of small-value credit payments every hour (at 8 a.m. CET for the first and at 4.30 p.m. CET for the last). Each collection is followed by payment processing, i.e. net positions are calculated and participants are informed accordingly. The five information

cycles end with the positions being sent to participants, which helps them manage their liquidity exposure to ensure that they can settle their net positions at the following settlement cut-off. At the fifth settlement cut-off, participants receive information on their net positions and are debited/credited within the settlement process.

Participants with a multilateral net debit position are directly debited by Banka Slovenije, which acts as a settlement agent. After debiting all debtors, Banka Slovenije credits the settlement accounts of all participants with a net credit position. The settlement cycle usually ends within 20 minutes (under the rules and procedures of the Giro Clearing system, Banka Slovenije must complete the cycle within 45 minutes).

#### **Credit and liquidity risk**

Credit and liquidity risk in the Giro Clearing system have been effectively managed by the introduction of a settlement guarantee scheme. The scheme reduces the settlement risk in the Giro Clearing system and ensures timely settlement of participants' net debit positions even if one participant defaults on settling its obligations. In order to achieve this, the scheme obliges all of the participants in the Giro Clearing system to share the loss deriving from one participant's default. In order to reduce the need to employ the loss-sharing agreement and to avoid further liquidity problems on the part of the surviving participants, positive limits are set on participants' home accounts. The sum of the participants' positive limits forms a guarantee fund.

#### **Pricing**

Participants are charged for the cost of maintaining the BSNet network. There is no membership or annual fee, but a fee of €0.02 is charged per payment order processed. Banks are also charged €0.88 for each individual settlement procedure they are involved in, either as debtor or creditor. The charges have been lowered twice since the introduction of the system, since Banka Slovenije is only

seeking full cost recovery, without profit. The fees charged are reviewed annually in this context.

#### **Statistical data**

In 2006 the Giro Clearing system processed more than 50 million transactions, with a total value of more than €22.9 billion, which represents an increase of approximately 1.9% in volume (9.5% in value) compared with 2005. The average value of the payments processed was approximately €454. The net liquidity required in order to settle these 50 million payments was around €3.8 billion, 16.6% of the total gross value.

#### **3.3.2 PROCESSING CENTRE**

The Processing Centre is a system operated by Bankart for the electronic exchange and processing of different types of standardised payment instrument (special payment orders, special paper-based debit orders, direct debits, direct credits and standing orders). The credit institutions under the auspices of the Bank Association of Slovenia prepared a special protocol on procedures for the use of these payment instruments in 2001. The purpose of this document and these activities was to standardise the use and processing of all such payment instruments.

Payment service providers exchange payment information via the Processing Centre in a standardised way, so a high level of STP is ensured. Payment instruments are also standardised to enable STP processing by the payment service providers and their customer information systems.

The Processing Centre only provides for information exchange between the participants, whereas the settlement of the payments made using these instruments is effected via TARGET between participating institutions bilaterally on a gross basis.

#### **3.3.3 CARD-BASED PAYMENT SYSTEMS**

There are three card-based payment systems in Slovenia.

Two of these are operated by Bankart (as the clearing house and processor), namely ATM Clearing for the settlement of ATM transactions with debit cards (all credit institutions issuing these cards are members) and Card Payments Clearing for the settlement of POS card transactions for the members of the system (i.e. credit institutions acting as issuer and/or acquirer). Both are multilateral net payment systems, with Bankart calculating net positions, which are settled via accounts with Banka Slovenije.

The third card-based payment system, Activa, is operated by Banka Koper (a credit institution) and processes card transactions at POS terminals for the members of the system (i.e. credit institutions acting as issuer and/or acquirer). Activa is also a multilateral net payment system, with Banka Koper acting as clearing agent, while Banka Slovenije acts as settlement agent.

Processing in all three systems is effected once daily, with settlement taking place the following day.

In addition, transactions using MasterCard and Visa cards at ATM and POS terminals in Slovenia, where the issuer and acquirer are not processed by the same processing centre, are cleared by MasterCard International and Visa Europe Services Inc. respectively and settled via Banka Slovenije, which acts as the settlement agent.

### 3.4 FUTURE DEVELOPMENTS

#### *Connection to TARGET2*

When the Single Shared Platform (SSP) has been established, Banka Slovenije and Slovenian banks will connect to the TARGET2 system. It is planned that Banka Slovenije and Slovenian banks will migrate to TARGET2 in the first migration window on 19 November 2007. All transactions covered by the fallback solution and settled in RTGS<sup>plus</sup> will then be settled in the TARGET2 environment in the SSP payment module. In addition, since interbank direct debits will be supported by the

SSP, the settlement of ancillary systems, for which Banka Slovenije will act as settlement agent, will be effected in the SSP payment module using a payment interface. For the end-of-day business, only Banka Slovenije will operate the proprietary home accounting module. Standing facility transactions that Slovenian banks, eligible for ESCB monetary policy and intraday credit operations, submit after TARGET2 has closed will be processed in PHAM. No other transactions will be processed in PHAM.

#### *SEPA migration*

Banka Slovenije, as a national central bank, is playing an important role in the implementation of the SEPA. Its main purpose is to act as a catalyst and to stimulate dialogue among the banks, thereby improving their cooperation in the small-value payments field. In view of this, Banka Slovenije helped to establish an organisational framework within the Bank Association of Slovenia (similar to that at the European Payments Council level) and actively participates in interbank discussions related to the SEPA, as well as in the preparation of the SEPA national implementation plan.

However, SEPA implementation is the responsibility of the market players, and the SEPA national implementation plan was prepared by the Bank Association of Slovenia in December 2006.

## 4 SECURITIES TRADING, CLEARING AND SETTLEMENT

### 4.1 TRADING

#### 4.1.1 LJUBLJANA STOCK EXCHANGE

Securities are traded on the only stock exchange currently operating in Slovenia, namely the Ljubljana Stock Exchange. Securities can be traded on the regulated market or off-market. Trades which bypass the regulated market are considered to be off-market (OTC) trades and are conducted solely by the KDD.



The LJSE was founded in December 1989. One of its core activities is to ensure transparent, safe, fair and effective trading in securities listed on the regulated market. Trading in securities is conducted in accordance with the existing laws, rules and regulations of the LJSE.

#### **Regulated market**

The regulated market is a securities market, directly or indirectly available to the public, hosting regular and regulated trading under the supervision of the relevant authorities. There are two regulated securities markets operated by the LJSE: the official market and the free market. In 2005 a special market-maker segment was introduced.

Various securities can be traded on the LJSE regulated market. All types of securities may be traded by forwarding an order to a broker. Once the security has been purchased on the regulated market, it is cleared and settled through the KDD within two days of the purchase. By law, securities can be traded on the regulated market if:

- they have been paid for in full;
- they are freely transferable;
- they are issued in dematerialised form (registered at the KDD); and
- the SMA has issued either the authorisation for the initial public offering or the authorisation for organised trading.

#### **Free market quotation**

When the above-mentioned conditions are met, a security may be admitted to the free market. The LJSE is legally bound to admit to the free market any security which meets the conditions imposed by law. The free market encompasses trading in securities that have successfully passed the initial public offering as determined by the Securities Market Act or for which the issuers have obtained due approval for regulated trading from the SMA, whereupon they were

not admitted to the official market listing. In addition to the official market, free market quotation also lists short-term securities and investment certificates stemming from the privatisation process. There are no limitations on price movements in free market quotation.

#### **Official market quotation**

For admission to listing on the official market, however, additional quantitative and qualitative criteria set by the LJSE need to be met (e.g. years of operation, availability of audited financial statements, capital size, number of shareholders, minimum size of class of shares). Also, companies whose securities are admitted to listing on the official market must pay a fee for admission, which depends on the value of the class of share and the value of the issue of bonds. The official market hosts trading in securities that have successfully passed the initial public offering as determined by the Securities Market Act or for which the issuers have obtained due approval for regulated trading from the SMA, whereupon the LJSE Admission Board has admitted them to the official market listing. The official market list contains equity instruments (shares and investment fund shares), investment coupons, Treasury bills and bonds. There is a daily maximum price movement limit of 10%.

The prime market is a special segment of the official market, introduced in October 2005, to which securities may be transferred if the issuer meets certain quantitative and liquidity criteria and observes additional disclosure obligations (e.g., in accordance with the International Financial Reporting Standards, availability of the company's public announcements in English). The prime market was created in order to promote the most prominent Slovenian issuers to the international investment community.

Clearing and settlement is performed in exactly the same way for both regulated market segments, namely through the KDD.



### **Market-maker segment**

In September 2005 a secondary quote-driven market-maker segment was introduced by the LJSE in cooperation with the Ministry of Finance solely in order to improve the liquidity of government bonds. Although the market-maker segment is part of the regulated market, the actual trading is organised through a special LJSE web application and only several stock exchange members are, if they fulfil special criteria, granted market-maker status. Settlement of securities is effected using the KDD's OTC-DvP mechanism.

### **Operational aspects**

Trading on the LJSE is fully electronic and is performed directly via the LJSE participants' local dedicated workstations. Trading has been automated in the form of an electronic trading system since 1993. A new trading system (BTS) was launched in 1999.

Electronic trading on the BTS takes place every day from 9.30 a.m. to 1 p.m. CET on the basis of continuous automated trading. A trade is concluded when an offer order matches a bid order, and trades are concluded in the order in which they are entered in the system.

Approximately one hour after the system closes, a number of indices are published, the most important being the SBI 20.

The BTS system was last upgraded in October 2005, enabling auction trading also for less liquid securities.

### **Financial intermediaries operating in the regulated securities markets**

In December 2006 there were 24 entities entitled to operate in the securities market, of which 12 were banks.

#### **4.1.2 OFF-MARKET (OTC) TRADES**

OTC trades are agreed bilaterally outside the LJSE's regulated markets. These trades, which are usually large-value trades, are thus not matched within the BTS system. As a result, they are not subject to the clearing and

settlement procedures of the LJSE that apply to official and free market trades. Investors in OTC trades are obliged to report them to the authorised market participants in order that the traded securities can be transmitted to the proper securities accounts (i.e. in order to record transfer of ownership) in the Central Register managed by the KDD.

Because clearing and settlement procedures are left to both parties to the trade, this process has given rise to large risk exposures (especially credit and liquidity risk). In July 2001 the KDD introduced a system for simultaneous real-time fulfilment of obligations from the unregulated market on a DvP basis (i.e. OTC-DvP) in order to give parties to OTC trades the opportunity to eliminate major financial risks.

## **4.2 CLEARING**

Presettlement clearing services performed in connection with the settlement of regulated market trades are conducted by the KDD and are described in the following section.

## **4.3 SETTLEMENT**

### **4.3.1 INSTITUTIONAL ASPECTS**

The KDD manages the securities clearing and settlement system and acts as the only central securities depository in Slovenia. The KDD has been settling securities transactions executed on the LJSE since December 1995, along with OTC transactions performed directly between investors.

The KDD is a private joint stock company, owned by 41 shareholders, including banks, government funds, management companies, brokerage firms and others (e.g. issuers). The initial share capital amounts to SIT 260,000,000 (approximately €1,084,000) and is divided into 520 ordinary registered shares. Most of the KDD owners are also its members.

The KDD provides its members, issuers and holders of securities with the following services

related to securities maintained in the Central Register:

- automated clearing and settlement of LJSE trades;
- settlement of OTC securities transactions;
- registration of all dematerialised securities;
- maintenance of securities accounts for legal owners;
- central database services for all dematerialised and immobilised securities;
- central depository services;
- custody services;
- corporate actions services;
- services to custodians; and
- processing of entitlements.

The following instruments are eligible for transfer within (and deposit at) the KDD:

- book-entry securities issued on the domestic market; and
- securities which have already been issued as physical certificates and are listed on the LJSE's regulated markets or traded off the regulated market.

#### ***Participation in the KDD system***

KDD members, regardless of the type of membership they apply for, must be authorised securities market participants licensed by the SMA – i.e. they comprise banks, brokerage firms, investment and management companies, the government of the Republic of Slovenia, Banka Slovenije and other clearing or depository organisations, institutional investors, custodian banks, etc. There is no other restriction on KDD membership, as long as the applicant meets all

of the legal criteria set out in the Securities Market Act.

Membership is granted to all applicants that have appropriate technical, organisational, human and financial resources, as well as legal grounds, and whose activities do not generate unacceptable risks for the KDD or for other members.

With the introduction of the new Central Register information system in 2005, participation in the KDD is possible under two types of membership: register membership and settlement membership. These differ in terms of access criteria and the services that can be performed, since only settlement members can participate in clearing and settlement of trades conducted on LJSE regulated markets.

All members of the LJSE are members of the KDD system, together with certain other institutions; in December 2006 there were 48 member institutions in all.

### **4.3.2 OPERATIONAL ASPECTS**

#### **4.3.2.1 Clearing and settlement of LJSE trades**

All trades carried out on the LJSE are subject to the clearing and settlement of liabilities through the KDD, which operates a BIS Model 2 settlement cycle (T+2) for all transactions conducted on the LJSE. Under LJSE rules, matched transactions on the LJSE regulated market become binding, irreversible and thus final at 1.30 p.m. CET on the trading day (T+0). Information on respective stock exchange transactions are continuously communicated to the KDD throughout T+0 and become final upon receipt of explicit confirmation from the LJSE, but no later than 2 p.m. CET. The KDD performs clearing by employing a multilateral settlement netting method and therefore performing a pure calculation of net payment obligations and net payment claims arising from transactions without affecting the underlying contract between the original parties to the trade. Every member therefore transfers its cash claims and obligations to the KDD, and

the KDD performs the netting procedure for the submitted cash obligations and claims.

Settlement members are notified of the final calculation of their positions and the required amount of liquidity reserves, which serve as a liquidity risk management tool, no later than 2 p.m. CET on the trading day. On T+1 (by 2 p.m. CET), the KDD sends a list of settlement members' expected net payment obligations on the settlement day (T+2) to Banka Slovenije, since the final cash leg settlement takes place on accounts with it.

The KDD never acts as the principal or assumes any credit risk, since any default on the securities or cash side is always fully covered with funds from the guarantee fund, to which the KDD itself does not contribute. Therefore, the KDD implicitly guarantees both the settlement of securities and the cash leg by having appropriate risk mitigation measures in place.

#### *The securities leg*

Securities transfers are processed on a gross basis within the same time frame on T+2 by transferring securities from the seller's account directly to the buyer's account. The role of the KDD is to perform its function as the settlement facilitator and to transfer the securities in question. Securities are never transferred via the KDD's special (fiduciary) securities account, which is only used in a special buy-in/sell-out procedure in the event of a settlement member's default. The KDD is obliged to deliver securities to the relevant accounts.

#### *The cash leg*

On T+2, net-to-pay settlement members must arrange for the funds transfers to be made from their house accounts or clients' funds accounts to their clearing (transitory or zero balance) accounts with Banka Slovenije. At 11 a.m. CET on T+2 they are expected to have cleared their accounts in favour of the clearing and settlement account of the KDD in TARGET. The final cash settlement is run at 1 p.m. CET on T+2, when the KDD transfers the received funds from its

clearing and settlement account to the net-to-receive members' clearing accounts.

#### **4.3.2.2 The settlement of OTC trades**

OTC (or off-market) transactions are agreed bilaterally between the two parties to the trade. Their cash obligations are settled individually and the trade is reported to the KDD via KDD members. The KDD executes and settles the securities leg of such requests as they are received. OTC transactions are approved and executed continuously throughout the KDD's operating hours, i.e. from 7 a.m. to 6 p.m. CET daily.

In July 2001 the KDD, together with Banka Slovenije, introduced the OTC-DvP service in accordance with the principles of BIS Model 1. This service allows parties to OTC trades to settle these in real time from 8 a.m. to 3.30 p.m. CET daily, using the DvP mechanism. This mechanism was developed primarily with the aim of eliminating the principal risk from the settlement of OTC trades.

The principle of the OTC-DvP mechanism is basically the same as that of all other OTC trades. The parties to a trade agree the details and report these (via their KDD member) to the KDD. The KDD assigns each reported OTC-DvP trade a unique ID and blocks the securities involved in the trade. It then communicates the assigned ID both to the seller and to the buyer, which uses it in the payment order when paying for the securities. The intermediate receiver of the funds is the KDD (i.e. the KDD's clearing and settlement account in TARGET), which simultaneously transfers the securities from the seller's to the buyer's account and initiates a payment order crediting the seller of the securities. This process ensures both efficiency and the elimination of principal risk (DvP mechanism).

The use of the OTC-DvP mechanism is, with the sole exception of the settlement of market-maker segment transactions, not obligatory, but it allows the effective real-time and principal risk-free settlement of OTC trades.

#### 4.3.3 THE MAIN PROJECTS AND POLICIES BEING IMPLEMENTED

In June 2005 the KDD launched its new Central Register information system. The advantages of the new solution, based on modern technological foundations and a service approach, are: improved communication and functionalities for members and issuers; faster and safer operations (encryption, digital signature, TCP/IP and HTTP protocol, appropriate data management); harmonisation with international recommendations and standards (ISIN, SWIFT, XML, IBAN, HTTP, ISO, etc.); and increased integrity and processing capacity of the system.

The KDD currently has no established cross-border links, but plans for establishing such links and building them into other cross-border services are under way.

#### 4.3.4 PRICING IN THE KDD

Participants in the KDD are charged in accordance with the KDD tariff available on the KDD's website (<http://www.kdd.si>).

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY BANKA SLOVENIJE

In 2006 the KDD was formally recognised by the ECB as an eligible securities settlement system for use in Eurosystem monetary policy and intraday credit operations. This enables Banka Slovenije, as a participant in the KDD system, to act as a user of the system for its domestic collateralisation operations and to play the role of correspondent central bank (CCB) in the correspondent central banking model (CCBM) framework for all eligible assets deposited in the KDD.

Since the beginning of 2007 Banka Slovenije has been using a new collateral management system which is fully compatible with the Eurosystem requirements. It is based on pledging as the collateralisation technique and pooling as the collateralisation method for all types of credit operation.

All eligible domestic assets issued in the KDD must be pledged to Banka Slovenije in order to be included in a counterparty's pool of eligible assets. The precise procedure is as follows: the counterparty must, on its own securities house account maintained at the KDD, pledge eligible securities to Banka Slovenije. The relevant information regarding the performed operation is then transmitted through an online connection from the KDD to Banka Slovenije, where the counterparty's pool value is updated. Banka Slovenije is the only entity authorised to cancel a pledge made to it. Therefore, by submitting a request to cancel a pledge to Banka Slovenije, counterparties are able to reduce the value of their pool or substitute assets within the pool on a daily basis, provided that the value of the pool is sufficient with regard to the outstanding credit volume.

Once assets are included in the pool, they are managed in accordance with Eurosystem requirements using the relevant risk control measures, i.e. marked to market with relevant valuation haircuts applied. A counterparty wishing to acquire credit must send a specific SWIFT message (MT 298) to Banka Slovenije and, provided that the value of the pool is sufficient, the desired amount will be credited to the counterparty's settlement account in TARGET.

Banka Slovenije, as the CCB, provides assistance to all relevant NCBs by supporting both techniques – i.e. pledge and (outright) repo – for the collateralisation of their Eurosystem credit operations.



# FINLAND

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## LIST OF ABBREVIATIONS

APK	Finnish central securities depository – <i>Suomen Arvopaperikeskus Oy</i>
BoF-RTGS	Real-time gross settlement system operated by Suomen Pankki – Finland's Bank
FSA	Finnish Financial Supervision Authority
HEXClear	APK's automatic clearing system
NCSD	Nordic Central Securities Depository
OM	APK's settlement system for equity securities
OMX	Exchange owner and operator in the Nordic and Baltic region and provider of financial services technology
OPK	OP Bank Group Central Cooperative – <i>Osuuspankkikeskus</i>
PAVE3	Banks' data transmission network – <i>Pankkiverkko</i>
PMJ	Finnish retail payment system
POLT	Banks' online data communication network
POPS	Finnish large-value payment system for express transfers and cheques – <i>Pankkien on-line pikasiirrot ja sekitt</i>
RM	APK's settlement system for fixed income securities
SAXESS	Trading system of the Helsinki Stock Exchange
SPY	Finnish Bankers' Association – <i>Suomen Pankkiyhdistys</i> , merged with three other Finnish associations in 2007 to become the Federation of Finnish Financial Services – <i>Finanssialan Keskusliitto</i>
VPC	Swedish central securities depository

## INTRODUCTION

Bank accounts and funds transfers between accounts together form the basis of payment services in Finland. The use of advanced payment technology has made the Finnish system highly efficient by substantially reducing the need for manual work. This is reflected in a very high level of automation for payments between banks and their customers, especially for interbank payments.

The early introduction of postal and bank giro systems, in 1939 and 1942 respectively, prevented the cheque from developing into an important payment medium and made credit transfers the main payment instrument for both retail and large-value payments. The policy, pursued since the 1960s, of paying wages and government benefits into bank accounts has fostered the development of bank account-based payment instruments. Debit cards are widely used for retail payments.

The Finnish interbank payment system consists of an RTGS system (BoF-RTGS), a retail payment system (PMJ) and a large-value payment system for express transfers and cheques (POPS). BoF-RTGS is operated by Suomen Pankki – Finlands Bank, and the other two systems are operated by the banks participating in them.

The Finnish securities markets and related infrastructure have been transformed by means of a number of mergers from a fragmented set-up into an integrated structure. The Helsinki Stock Exchange has been a part of the OMX Group since 2003. Furthermore, the consolidation, in 2004, of the Finnish central securities depository Suomen Arvopaperikeskus Oy (APK) and the Swedish central securities depository VPC AB created the Nordic Central Securities Depository. Settlement of securities trading has taken place in book-entry form in Finland since 1992. Finnish securities traded publicly are issued in the central registry operated by APK.



## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

Suomen Pankki – Finlands Bank is part of the European System of Central Banks (ESCB), which comprises all of the EU national central banks (NCBs) and the ECB. One of the objectives of the ESCB is to promote the smooth operation of payment systems. Suomen Pankki – Finlands Bank acts to maintain and increase the stability, reliability and efficiency of financial and payment systems in Finland. Its aim is to prevent financial crises wherever possible and to manage them in an effective manner where they prove unavoidable. The central bank seeks to achieve these objectives through payment transfer operations, general oversight and financial operations, and through its participation in the development of such systems.

The main institutions governing, overseeing, regulating and supervising the Finnish financial markets are Suomen Pankki – Finlands Bank, the Finnish Financial Supervision Authority (FSA) and the Ministry of Finance. The roles of these bodies are discussed in Sections 1.2 and 1.3.

There is currently no one piece of legislation governing payment systems in Finland. Instead of a single payment systems act, there are a number of separate acts regulating various areas of the payment systems.

Finland has a banking system which operates according to the “universal banking” approach. The Credit Institutions Act (1607/1993) lays down the general legal framework for banking and financial activities. The Act on the activities of foreign credit and financial institutions operating in Finland (1608/1993) governs the activities of branches of foreign credit institutions in Finland. These and other acts concerning the corporate structure of different types of bank are in line with applicable Community legislation, including Directive 2000/12/EC relating to the taking up and pursuit

of the business of credit institutions, as well as Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.

The Cheque Act (244/1932), which is based on the Geneva Convention of 1931, stipulates the rules governing the use of cheques. Acts covering bills of exchange (242/1932) and promissory notes (622/1947) contain general provisions concerning payments in these areas. The Securities Market Act (495/1989) contains rules governing, inter alia, the payment services of clearing organisations.

Directive 98/26/EC on settlement finality in payment and securities settlement systems was implemented in Finland in 1999 by the Act on certain conditions of securities and currency trading as well as settlement systems (Nettoutuslaki; 1084/1999). Directive 97/5/EC on cross-border credit transfers was implemented in 1999 by means of the Act on credit transfers (Tilisiirtolaki; 821/1999).

Regulation (EC) No 2560/2001 on cross-border payments in euro, which harmonises the fees for cross-border and national payments, is directly applicable.

There is no separate legislation governing card payments, and agreements between banks, customers and service providers in this area are based on contract law. However, the Consumer Protection Act (38/1978) includes provisions on lost, stolen and misused cards, and also defines the responsibilities of card issuers and cardholders.

The Penal Code contains provisions on fraud involving payment media and money laundering (769/1990, Chapters 32 and 37). In addition, there is a separate legal act on money laundering (68/1998).

## 1.2 THE ROLE OF SUOMEN PANKKI – FINLANDS BANK

### 1.2.1 GENERAL RESPONSIBILITIES

Under the Finnish constitution, Suomen Pankki – Finlands Bank “operates under the guarantee and care of Parliament and is supervised by the Parliamentary Supervisory Council”. The Act on the Bank of Finland (214/1998) stipulates that the primary objective of Suomen Pankki – Finlands Bank is to maintain price stability. The Act also sets the national central bank the overall objective of maintaining the reliability and efficiency of payment systems and the broader financial system. The Act identifies payment systems oversight as one of the tasks of Suomen Pankki – Finlands Bank.

The tasks and objectives of Suomen Pankki – Finlands Bank, together with related matters, are prescribed in the Act on the Bank of Finland, under which the Bank is also obliged to:

- help to maintain the reliability and efficiency of payment systems and the financial system in general, and assist with the development of such systems;
- issue banknotes and, in cooperation with banks and other enterprises, contribute to the maintenance of the currency supply;
- contribute to the holding and management of international reserves; and
- arrange for the compilation and publication of statistics as required for the carrying out of its tasks.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

The objectives of the oversight activities of Suomen Pankki – Finlands Bank are: to maintain the stability of payment and settlement systems; to improve the efficiency of these systems; to improve the security of payment instruments used by the public; and to safeguard the transmission channel for monetary policy. The operational objectives of this payment systems oversight are: (i) to foster the use of RTGS

systems for the transfer of large-value payments; and (ii) to ensure that payment systems and instruments, which fall within the oversight competence of Suomen Pankki – Finlands Bank, fulfil the oversight standards laid down by the national central bank and, in particular, the Eurosystem. The main systems overseen by Suomen Pankki – Finlands Bank are BoF-RTGS (the Finnish TARGET component), POPS (the national large-value payment system) and PMJ (the national retail payment system). The operational objective of settlement systems oversight is to ensure that SSSs and their interconnecting links are planned, implemented and supervised effectively and efficiently.

The main instruments used in oversight are recommendations and moral suasion. Suomen Pankki – Finlands Bank can issue recommendations to banks on payment systems matters, but it is not legally empowered to issue binding regulations. The participation of Suomen Pankki – Finlands Bank in the development of private payment systems is based on cooperation between the banks and the national central bank.

The Financial Markets and Statistics Department is responsible for the oversight of payment and settlement systems and general policy in this field (see Section 1.2.3 for details regarding TARGET). Further tasks include participation in the Eurosystem’s payment and settlement systems oversight and policy work, the analysis of payment and settlement systems issues, and the monitoring of developments in national and international payment and securities settlement systems.

### 1.2.3 OPERATIONAL ROLE

Suomen Pankki – Finlands Bank operates BoF-RTGS, which is part of the TARGET system. Within Suomen Pankki – Finlands Bank, responsibility for the operation and development of BoF-RTGS lies with the Banking Operations Department. Account holders maintain settlement accounts at the central bank to facilitate the settlement of their own and customers’ payments. In addition to credit

institutions, the State Treasury, APK and Automatia Pankkiautomaatit Oy also hold settlement accounts at Suomen Pankki – Finlands Bank.

In order to promote the smooth functioning of BoF-RTGS and facilitate the settlement of payments, Suomen Pankki – Finlands Bank provides credit facilities to eligible participants. A precondition for access to these facilities is that these institutions meet the conditions laid down in Suomen Pankki – Finlands Bank's rules for counterparties and account holders.

Banknotes and coins are distributed to the public through Suomen Pankki – Finlands Bank's branches, which operate as wholesale suppliers. Cash is then distributed to private customers via bank branches and ATMs, or to direct corporate clients through Automatia Pankkiautomaatit Oy, which is also responsible for the single ATM network.

#### **1.2.4 DEVELOPMENT OF PAYMENT AND SETTLEMENT SYSTEMS**

The Banking Operations Department of Suomen Pankki – Finlands Bank is responsible for the development of BoF-RTGS, the RTGS system of the national central bank. Other domestic payment systems are developed by the Finnish Bankers' Association (SPY) in cooperation with Suomen Pankki – Finlands Bank, in particular the Financial Markets and Statistics Department. The main aims of those development activities are: to improve the efficiency of payment systems; to reduce payment service providers' exposure to risks associated with payment systems and instruments; and to ensure that payment systems meet the relevant minimum standards, in particular the oversight standards of the Eurosystem.

In the field of SSSs, Suomen Pankki – Finlands Bank holds monthly meetings with APK. The aim of these meetings is to monitor APK's development projects and to improve the reliability and efficiency of securities settlement in Finland.

Suomen Pankki – Finlands Bank cooperates actively with the relevant Finnish authorities by means of coordination groups and through a varied seminar programme which also involves market participants.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 THE MINISTRY OF FINANCE**

The Ministry of Finance drafts legislation on banking and other financial activities, as well as designating systems for the purposes of Directive 98/26/EC on settlement finality in payment and securities settlement systems. The Ministry has a representative on the Board of the Finnish Financial Supervision Authority.

The State Treasury, which is accountable to the Ministry of Finance, acts as the state's fiscal agent, coordinating its payments and acting as its cashier. The State Treasury holds an account in BoF-RTGS for the settlement of – typically large-value – payments related to financial operations. The state's bulk payments are effected mainly through private banks.

#### **1.3.2 FINANCIAL SUPERVISION AUTHORITY**

The objective of the Financial Supervision Authority is to ensure financial stability and maintain public confidence in financial markets. It is responsible for the supervision of financial markets and market participants, including the task of granting licences to credit institutions and other financial intermediaries. Since October 1993 it has functioned in conjunction with Suomen Pankki – Finlands Bank. It is independent in its decision-making and has its own Board. The Deputy Governor of Suomen Pankki – Finlands Bank acts as Chairman of the Board of the FSA, and the Head of the Financial Markets and Statistics Department is a deputy Board member.

#### **1.3.3 FEDERATION OF FINNISH FINANCIAL SERVICES/FINNISH BANKERS' ASSOCIATION**

The Finnish Bankers' Association has functioned as the umbrella organisation for Finnish deposit banks since 1914, representing and promoting

the interests of the Finnish banking industry. This changed in early 2007 when the Finnish Bankers' Association, the Federation of Finnish Insurance Companies and the Employers' Association of Finnish Financial Institutions merged to form the Federation of Finnish Financial Services. This new entity has taken over the duties of the Finnish Bankers' Association, concerning itself with banking operations, operating conditions and interbank cooperation (including the coordination of SEPA activities), as well as maintaining contacts with financial institutions, the authorities and economic organisations. It issues opinions and proposals on legislative and economic aspects of banking and finance. The Federation of Finnish Financial Services will be represented in several organisations and committees, for example the European Banking Federation (EBF).

As Finland does not have a separate automated clearing house (transaction information is exchanged bilaterally between participants, and settlement takes place in BoF-RTGS), the Federation of Finnish Financial Services will have a particular role to play in the development and maintenance of private payment systems, as well as in the administration of contracts relating to these systems. Consequently, there is a network of committees within the Federation of Finnish Financial Services, including committees concerned with banking, banking technology, finance houses, international affairs, legal issues and securities. The member banks of the Federation of Finnish Financial Services will participate in these fora. The Federation of Finnish Financial Services will also provide information and statistics on Finnish payment systems and instruments.

#### 1.3.4 OTHER COOPERATIVE BODIES

The OP Bank Group Central Cooperative (Osuuspankkikeskus; OPK) operates as the development and service centre for the entire Cooperative Bank Group and is a central institution with responsibility for Group control and monitoring. The OPK is responsible, inter alia, for supporting the implementation of

Group strategy across the member banks, strengthening Group unity and ensuring continuous risk management and supervision. The task of "Group control" also involves ensuring that the OP Bank Group's best interests are served during the drafting of financial legislation and in the development of other standards, both in Finland and internationally. OKO Bank (OKO Osuuspankkien Keskuspankki) is a commercial bank which acts as the OP Bank Group's central bank and is responsible for the Group's liquidity and the handling of its international operations.

The Finnish Savings Banks Association (Säästöpankkiliitto) is the central organisation for Finnish savings banks. Its purpose is to promote the development and cooperation of savings banks and to look after their interests. The Association seeks to contribute to the formulation of banking standards and related legislation, and to maintain contacts with public authorities and Finnish and foreign banking organisations. The Association decides on common policy for savings banks and is also responsible for the savings banks' joint marketing, training and communications activities. Aktia Savings Bank plc serves as the central financial institution for savings and local cooperative banks.<sup>1</sup>

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

As Finland is part of the euro area, its currency unit is the euro. The euro is divided into 100 cent. The euro banknote series comprises seven different denominations: €5, €10, €20, €50, €100, €200 and €500. The denominations of euro coin are: €0.01, €0.02, €0.05, €0.10, €0.20, €0.50, €1 and €2. There is also a small stock of commemorative coins. These are mostly collectors' items and are very seldom used as payment instruments.

<sup>1</sup> The savings banks have an agreement with the local cooperative banks regarding their customers' use of each other's service networks.

Legally, both the ECB and the national central banks of the euro area have the right to issue euro banknotes. In practice, only the national central banks physically issue and withdraw euro banknotes (and coins). Since 2002 the production of the various banknote denominations has been pooled. Each NCB is responsible for producing only a few denominations. Since 2002 Suomen Pankki – Finlands Bank has produced €20 and €100 banknotes, and in 2006 it produced €5 banknotes.

Responsibility for minting euro coins lies with the national governments of the EU Member States belonging to the euro area and is coordinated by the European Commission. The overall value of the coins to be put into circulation annually must be approved in advance by the ECB. The Finnish euro coins are produced by Mint of Finland Ltd, which is owned by the Ministry of Finance.

Since the beginning of 2002 the amount of cash put into circulation by Suomen Pankki – Finlands Bank has increased rapidly; indeed, it more than doubled between the start of 2002 and the end of 2005. However, it is difficult to estimate how much of this cash is actually used in Finland. In fact, it is thought that a large percentage of this cash is used outside Finland, both in other euro area countries and outside the euro area and the EU.

In recent years cash use in national retail transactions has been declining, with cash largely being replaced by card payments. Around 80% of banknotes are distributed to the public through ATMs, although these dispense only €20 and €50 banknotes. Higher denomination banknotes and larger amounts of cash are distributed via bank branches. The number of ATM cash withdrawals has declined (falling from 221 million in 2004 to 209 million in 2005). The value of ATM cash withdrawals has also declined slightly (falling from €17.2 billion in 2004 to €16.9 billion in 2005), even though the average size of a withdrawal has increased to €81. These trends are expected

to continue in the future. On the basis of rough calculations regarding the use of cash in domestic face-to-face retail payments, it is estimated that cash is used in almost half of payments in terms of value, while the share of cash in terms of volume may still be somewhat higher.

## 2.2 NON-CASH PAYMENTS

All banks in Finland offer internet banking services. At the end of 2005 there were almost 3.6 million internet banking agreements between banks and customers. The number of internet banking agreements has increased rapidly over the last few years. Mobile phone-based banking services (e.g. bill payment and balance checking) have also been available since 1996. In 2005 the number of payments made via the internet and telebanking was 284 million, an increase of 38% by comparison with 2004.

Major banks also offer the possibility of online purchases, whereby customers can pay in real time by selecting from the merchant's website the internet payment code for their own bank (typically by clicking a button with the bank's logo) and accepting the bill that appears on the screen. Customers are directed to their bank's website for the execution of the payment in the form of a credit transfer and, once the payment has been successfully made, are then directed back to the merchant's website.

Despite the development of new service channels and terminals, older methods (e.g. telebanking using conventional telephones) remain in use.

In 2005 Finnish banking customers held transferable deposits in approximately 12.4 million accounts, i.e. a little more than two accounts per inhabitant. There are several different types of account in Finland, including savings accounts, postal giro accounts and transaction and cheque accounts. Some also have an overdraft facility. Various payment instruments (e.g. debit cards, credit cards and

cheques) may be linked to these accounts, although cheques are seldom used. Corporate customers usually have bank accounts with more than one banking group in order to facilitate swifter payments.

### 2.2.1 CREDIT TRANSFERS

The credit transfer (or giro) is the predominant means of making payments in Finland. Until 1993 there were separate paper forms for bank and postal credit transfers, although the two systems had been used in parallel for a long time. In 1993 these forms were unified through the introduction of a new common credit transfer form. At the same time, the term “credit transfer” began to be used for both bank and postal credit transfer payments. In a credit transfer payment, a customer submits an instruction to debit its account and to credit the payee’s account in the same or another banking group. In order to reduce the amount of paper – and thus the expense – involved, banks have developed electronic methods for the sending of such payment instructions. These include telephone banking, giro ATMs and internet banking, as well as SMS and WAP-based mobile phone banking services. As most customers already have access to web-based services, banks are currently slowly reducing the number of giro ATMs.

The credit transfer system was originally paper-based. The related high costs gave banks a strong incentive to develop electronic systems. By applying a pricing policy that comes close to full-cost pricing, the banks have persuaded customers to make greater use of electronic submission methods for transfer orders. The total number of credit transfers in 2005 was 619 million. Of that total, approximately 92% of credit transfers were received from customers electronically. All interbank payment instructions are normally exchanged electronically.

In order to link the payment system to companies’ billing systems, the banks have developed a reference number system. A “reference credit transfer” is a credit transfer

with a preprinted reference number that identifies the bill and the payer to the payee. This service enables creditor companies to automatically reconcile the incoming payment with the bill sent.

Credit transfers between two customers using the same bank are normally processed in real time. Domestic credit transfers to another bank are typically credited to a payee’s account on D+1. For time-critical giro payments between banks, a special service called “Express Transfer” is available, enabling funds to be transferred intraday.

#### *Recurrent payments*

The transfer of recurrent payments was the first electronic payment service to be developed jointly by banks in Finland. This service, developed in the 1960s, enables corporate customers to transfer wages and salaries, pensions, payments for products and other recurrent payments in one batch to several payees, with those payments transferred from the customers’ own data processing systems to banks’ data processing systems for crediting to payees’ accounts. A corporate customer can send all information related to its recurrent payments to its own bank, which then forwards the payments to the payees’ banks. There were 85 million recurrent payment transactions in 2005, i.e. over 16 payments per inhabitant.

### 2.2.2 CHEQUES

Cheques have never been a very common payment medium in Finland and their use has decreased sharply in recent years in terms of volume. In 2005 only 0.7 million cheques were written, with an average value of €46,000. Cheques are currently used for two main purposes: for large-value payments by companies, and as small-value gift cheques (e.g. for graduates). Owing to the withdrawal of the cheque guarantee in 1997 and the manual work involved in processing cheques, many retailers refuse to accept them.

Bank drafts are cheques drawn by a bank on itself, whereby the bank undertakes to pay a



stated sum of money on demand. Bank drafts are honoured by all banks and are equivalent to cash in transactions. Bank drafts are popular, for example, in house purchases.

### 2.2.3 DIRECT DEBITS

A direct debit is a pre-authorised transaction whereby the payee, through its own bank, debits the payer's account on the due date. This method is largely used for regular payments of varying amounts, such as electricity and telephone bills, or newspaper and magazine subscriptions. The payee must inform the payer about the bill before sending the direct debit order, so that the payer can ensure that there are sufficient funds in its account or reject the forthcoming direct debit order. The payer has no right to revoke a payment once it has been debited.

Direct debits were introduced in 1978. However, direct debiting accounted for only 10% of all credit transfers in 2005. 72 million direct debit transactions were carried out in 2005, i.e. approximately 14 transactions per inhabitant.

### 2.2.4 PAYMENT CARDS

Since the late 1980s payment cards – especially debit cards – have been used in daily retail payments, partly replacing cash and almost completely replacing cheques. In 2005 there were 740 million payment card transactions, i.e. approximately 142 payment card transactions per inhabitant. The total value of such transactions was €27.2 billion, i.e. an average value of €37 per transaction.

#### (a) Debit cards

Debit cards are issued by banks and have payment and ATM functions, enabling customers to use them to pay for purchases in shops, to pay bills via ATMs or to withdraw cash from cash-dispensing ATMs. In addition, there are “combined cards”, which are debit cards also incorporating credit or delayed debit functions. In 2005 the volume and value of debit card transactions were 598 million and €19.8 billion respectively. In particular, the online debit

card Visa Electron is becoming increasingly popular (with a transaction volume and value of 61 million and €1.3 billion in 2004, and 100 million and €2 billion in 2005).

Physical debit cards are typically valid only in Finland, while Visa Electron cards are also accepted in other countries.

#### b) Delayed debit and credit cards

Delayed debit cards allow payment to be delayed by up to 45 days, with no interest charged on extended credit. Cardholders are charged an annual fee, the size of which depends on the predetermined credit limit. A credit function can be included in most delayed debit cards. The most popular delayed debit and credit cards in Finland are the international Visa and Eurocard/MasterCard brands. Diners Club and American Express cards are also used to some extent. In 2005 there were 3.1 million delayed debit and credit cards in circulation.

#### (c) Retailer cards

Retailer cards are issued mainly by petrol companies, travel agencies, furniture stores, etc. There were 3.1 million retailer cards in circulation at the end of 2005.

#### (d) Prepaid cards and electronic money

There are a number of relatively small e-money service providers in Finland. Matkahuolto Ltd, the nationwide marketing company for private coach companies, has its own prepaid cards for paying coach fares. Pääkaupunkiseudun yhteistyövaltuuskunta (YTV), which, inter alia, coordinates public transport in the Helsinki area, provides prepaid cards for paying public transport fares. Some municipalities issue “city cards”, which can be used for paying local transport fares and some other local charges and fees, but the use of these cards is currently very limited. OP Bank Group offers the Digiraha service, which can be used for payments on the internet and by mobile phone. Mobiiliraha, which is offered by the Nordea and Sampo banks, as well as the telecommunications service provider Elisa, can be used for making payments via mobile phone.



In 2005 e-money was accepted as a means of payment by approximately 1,010 different service providers, with a total of 7,975 payment terminals. Compared with other means of payment, the issuance and use of e-money is very limited. It is likely to decline further following the closure of the largest e-money scheme, Avant. At the end of 2005 there were approximately 1.5 million e-money cards (both reloadable and disposable) in circulation, and these were used in 417,000 payment transactions during that year. Of all reloadable e-money cards, only 8,190 were active, i.e. used in the last three months of that year.

#### (e) ATM and POS networks

There is one ATM network in Finland, called "Otto." It is operated by Automatia Pankkiautomaatit Oy, which has a total of 1,689 terminals and is jointly owned by the Nordea and Sampo banks, together with the OP Bank Group. The number of ATMs decreased by 21% in the period 2000-05, mainly owing to the consolidation of existing ATM networks to form one Otto. network.

Since 1989 bank customers have been able to execute credit transfers via special bill payment (giro) ATMs. In 2005 over 42 million payments were effected through giro ATMs, which represented approximately 6% of all credit transfers in that year.

At the end of 2005 there were 0.1 million EFTPOS card readers in Finland. These terminals identify a card being inserted into them on the basis of the data stored in the magnetic strip or chip. When a transaction is made, the terminal checks that the card is valid and that it is accepted by the retailer. In addition, the terminal checks that the card is not on the list of cancelled cards (known as the "hot card file"). EFTPOS terminals do not necessarily automatically check to see whether the customer has sufficient funds in the account or is within any specified credit or spending limits. However, transactions totalling €150 or more must be authorised. As a further security measure, customers must provide retailers with

identification if transactions exceed €50. Terminals may be linked to a retailer's cash desk system or may store details of customers' card transactions independently in a computer memory. From there, they are transmitted electronically to banks at predefined intervals.

#### 2.2.5 OTHER PAYMENT INSTRUMENTS

Luncheon vouchers are a payment medium used by employers, which buy the vouchers from the issuer and sell them to their employees at their taxable value or distribute them free of charge as a fringe benefit. Employees use vouchers to pay for meals in restaurants or cafes, which in turn submit the vouchers to the issuer, which then credits their bank accounts with the relevant amounts. In 2005 16.8 million luncheon voucher transactions were carried out, with a total value of €122.2 million.

### 2.3 RECENT DEVELOPMENTS

#### SEPA developments

European banks, the European Central Bank and the European Commission are seeking to create an integrated payments area, known as the Single Euro Payments Area (SEPA). A uniform basic service level for payments between banks is to be created. In addition to these basic services, banks will have the possibility of offering their customers various value-added services. In March 2006 the Finnish banking sector issued a national migration plan for the establishment of the SEPA in Finland, which is available on the SPY's website ([http://www.pankkiyhdistys.fi/sisalto\\_eng/upload/pdf/SEPAimplementation2006.pdf](http://www.pankkiyhdistys.fi/sisalto_eng/upload/pdf/SEPAimplementation2006.pdf)).

According to the national migration plan, the first range of SEPA services is scheduled to be ready for implementation on 1 January 2008. The interbank schemes designed to enable the provision of these services are related to credit transfers, direct debits and payment cards. The credit transfer and direct debit services currently under development in this context are very basic. Consequently, the existing Finnish payment products will continue to operate in

parallel during a transitional period to be determined at a later date.

The banks will introduce SEPA-compliant card products in the euro area no later than 1 January 2008, with each bank operating at its own discretion. The Finnish banking sector has decided to replace the current national debit card scheme with international debit card brands. From 2008 banks will issue only cards that can be used for payments in all EU Member States.

#### **Electronic Bill Presentment**

Electronic Bill Presentment (EBP) is a term used to describe the delivery of bills electronically via the internet, instead of in paper form by post. The Finnish banking sector has established a common format for electronic invoices, called Finvoice. The invoicer sends an electronic bill, or Finvoice, to its bank, which then forwards it to the payer. The invoice may be opened in a browser and processed manually. Fully automated processing is also possible. The use of Finvoice requires agreements both between the invoicer and its bank, and between the payer and its bank. For the moment, the Finvoice service is available only to businesses.

### **3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS**

#### **3.1 GENERAL OVERVIEW**

The Finnish interbank payment system consists of an RTGS system (BoF-RTGS, the Finnish TARGET component), a retail payment system (PMJ) and a large-value payment system for express transfers and cheques (POPS). BoF-RTGS is owned and operated by Suomen Pankki – Finlands Bank, and the other two systems are owned and operated by the banks participating in them.

#### **3.2 THE SUOMEN PANKKI – FINLANDS BANK REAL-TIME GROSS SETTLEMENT SYSTEM (BOF-RTGS)**

This RTGS system consists of Suomen Pankki – Finlands Bank's RTGS application, an account holder interface, a SWIFT interface and an account holder application supplied to account holders by Suomen Pankki – Finlands Bank.

In 2005 the turnover of BoF-RTGS was €4,995 billion. The number of transactions totalled 472,700, of which 328,500 were outgoing or incoming cross-border payments. The total turnover of the system was around 33 times the GDP of Finland.

##### **3.2.1 OPERATING RULES**

The operating rules of BoF-RTGS are presented in Suomen Pankki – Finlands Bank's rules for counterparties and account holders, which are available at [www.bof.fi](http://www.bof.fi). These rules form an integral part of the agreement on the settlement account concluded between Suomen Pankki – Finlands Bank and each BoF-RTGS participant. The rules are in line with the ECB's TARGET Guideline.

##### **3.2.2 PARTICIPATION IN THE SYSTEM**

The access criteria for BoF-RTGS comply with the ECB's TARGET Guideline. In addition to credit institutions as defined in the TARGET Guideline, Suomen Pankki – Finlands Bank may also admit as account holders the State Treasury, investment firms established in the EEA and organisations providing clearing and settlement services. Organisations providing clearing and settlement services must be subject to oversight by a competent authority and have fully paid-up capital of at least €2.5 million.

The participating institutions are required to sign an agreement on the settlement account. Before access to BoF-RTGS is granted, applicants must also pass an assessment by a legal expert on their ability to observe the rules of BoF-RTGS.

An account holder participating in the retail payment system PMJ is required to install an account holder application supplied by Suomen Pankki – Finlands Bank, or its own corresponding account holder interface, to be used as a backup system to enable it to send clearing calculations to Suomen Pankki – Finlands Bank and to monitor the balance on its settlement account in real time.

The sending and receiving of cross-border payments requires the installation of a SWIFT interface.

In March 2006 there were 17 institutions participating in BoF-RTGS. These comprised the State Treasury, APK, Automatia pankkiautomaatit Oy, and national and foreign credit institutions.

Regional savings banks (42), independent cooperative banks (40) and other cooperative banks (238) participate in TARGET via their central financial institutions. Aktia represents the savings banks and independent cooperative banks, while OKO Bank represents the cooperative banks. These central financial institutions have direct access to BoF-RTGS and thus operate as their member banks' settlement agents in the system.

### 3.2.3 TYPES OF TRANSACTION HANDLED

BoF-RTGS is used for the real-time gross settlement of national and international central bank, customer and interbank transfers, as well as for the settlement of ancillary systems (the retail payment system PMJ, the large-value payment system POPS, and APK's RM and OM systems). These payments are typically important large-value payments which must be settled quickly and safely. They include transfers related to money market and foreign exchange trading and interbank lending and borrowing, as well as funds transfers between Suomen Pankki – Finlands Bank and the banks (open market operations and cash delivery). Transfers related to the settlement of ancillary systems also form an important part of these payments.

Although there are no restrictions as regards the minimum size of a payment in the system, BoF-RTGS is used mainly for large-value payments. Average payment values in 2005 were: €10.3 million for national transfers; and €9.7 million and €11.9 million for incoming and outgoing cross-border transfers respectively.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The operating hours of BoF-RTGS are the same as for TARGET, and its operating days are the same as those laid down for TARGET in the TARGET Guideline.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

Payment transfers are sent to Suomen Pankki – Finlands Bank using the account holder application or via a SWIFT interface. These are linked with Suomen Pankki – Finlands Bank's settlement account database via telecommunications lines, which are leased from private telecommunications companies. In order to ensure the security of data, all transfers are encrypted. All cross-border TARGET transactions must be sent through the SWIFT interface.

In addition to transferring payments in real time, account holders can use their account holder application to monitor their liquidity position. All entries in participants' accounts are transmitted back to their workstations in real time, thus allowing account holders to monitor their accounts' entries and balances on a continuous basis. Suomen Pankki – Finlands Bank is able to send necessary information to account holder applications. The system is able to print out various kinds of report, the most important being the daily statement of account.

In the event of any disruption or malfunction, backup procedures and systems are readily available to enable settlement to continue until the system has been recovered.

### 3.2.6 SETTLEMENT PROCEDURES

Payment transfers entered into the system by account holders and Suomen Pankki – Finlands Bank are settled across and booked in the settlement accounts of the account holders in real time, provided that adequate liquidity is available and the payments are eligible for settlement. BoF-RTGS provides immediate finality. Payment transfers entered in the system are irrevocable and final as soon as they are debited from the sender's account.

All payment orders entering the system are placed in a payment queue. If liquidity is available, the payments are settled directly from the queue. If liquidity is not available for direct settlement, payments are settled in FIFO order on the basis of receipt times within a given priority class. If the sending account holder has not specified a priority code for a payment order, the system will automatically assign the lowest priority code to the payment order in question. Account holders can also specify earliest settlement times for individual payments. A payment order in a queue will not be executed before this time. It is also possible to send a payment order to BoF-RTGS in advance for settlement on a future value date. Participants do not receive information on incoming queued transfers.

An account holder can remove a payment order from its payment queue and change the order of queued payments using the account holder application. Payment orders for a given settlement day that remain in the queue at the end of that day are automatically removed from the system (customer payments being removed immediately at 5 p.m. CET and interbank payments being removed at 6 p.m. CET).

BoF-RTGS periodically attempts to settle simultaneously all queued payment orders which qualify for settlement. Simultaneous settlement is carried out if all the queued payment orders which qualify for settlement can be executed, and is subject to the availability of sufficient funds (i.e. each account holder must have sufficient funds available in its

account to cover the net balance of outgoing and incoming payment orders in its queue).

### 3.2.7 CREDIT AND SETTLEMENT RISK

As funds transfers in an RTGS system are executed only if there are sufficient funds to cover each transfer, the system does not involve any credit risk for the participants. Liquidity available to account holders consists of minimum reserves held in the settlement accounts and fully collateralised intraday credit provided by Suomen Pankki – Finlands Bank.

### 3.2.8 PRICING

There is a €3,000 fee for opening an account in BoF-RTGS. There is also a fixed monthly charge of €270 per account and a variable charge, based on the total number of payments made per month, for individual payments submitted electronically. Cross-border payment fees are laid down in the TARGET Guideline. The fees charged for domestic payments are: €0.80 for each of the first 100 transactions per month, €0.45 for each of the next 900 transactions and €0.35 for each subsequent transaction.

In addition, the account holder bears all costs arising in connection with the interfaces, data communications services and security arrangements which it uses. The account holder application supplied by Suomen Pankki – Finlands Bank costs €5,000, and there is a maintenance fee of €120 per month.

Suomen Pankki – Finlands Bank will charge the account holder separately for any costs it incurs as a result of the requirements of the account holder. This relates not only to Suomen Pankki – Finlands Bank's own system, but also to costs arising from the interfaces through which the account holder uses BoF-RTGS. For instance, banks participating in clearing within the interbank retail payment system PMJ will be charged, on an annual basis, the costs incurred by Suomen Pankki – Finlands Bank as a result of the transmission of clearing data between Suomen Pankki – Finlands Bank and the

clearing banks via the PAVE3 data transmission system.

### 3.3 THE POPS LARGE-VALUE PAYMENT SYSTEM FOR EXPRESS TRANSFERS AND CHEQUES

POPS is a real-time system operated by the participating banks on a decentralised basis. Banks participating in the system send payment messages bilaterally. The system uses both continuous netting within bilaterally agreed credit limits and gross settlement in BoF-RTGS. The total value of payments settled in the system in 2005 was €454 billion. The total number of transactions was 595,000.

#### 3.3.1 OPERATING RULES

POPS is governed by a number of rules/agreements both between the individual system participants and between these participants and Suomen Pankki – Finlands Bank. These agreements determine the procedures for the transmission of payment and other related information between participants, establish the procedures for settlement in BoF-RTGS, lay down the procedures for participation in the system and deal with issues related to the technical infrastructure. Participants also conclude bilateral agreements governing the bilateral credit limits to be granted to each other. Banks also conclude agreements with Suomen Pankki – Finlands Bank on the maximum bilateral limits set. The system rules form part of these agreements.

#### 3.3.2 PARTICIPATION IN THE SYSTEM

Participation in the system can be either direct or indirect. Direct participants are required to be deposit banks (i.e. credit institutions within the meaning of Article 1(1) of Directive 2000/12/EC) and must have been granted clearing bank status. To obtain clearing bank status, a bank must apply for a settlement account in BoF-RTGS (and must, therefore, fulfil the criteria for opening an account at the central bank). Other criteria include: (i) the signing of the agreements governing the system, (ii) membership of the Finnish Bankers' Association, and (iii) participation in the POLT

(banks' online data communication network) and PAVE3 networks. Furthermore, a prerequisite for the participation of foreign credit institutions in POPS is the carrying out of assessments concerning the institutions' home country legislation on netting and the finality of netting.

Indirect participation is available to customers of an existing clearing bank. Indirect participants pay direct participants for the clearing services provided by the latter.

The participating banks own and operate the system, and those that are members of the SPY decide on participation. At the end of 2005 there were nine direct participants in POPS, three of which were local branches of foreign banks.

#### 3.3.3 TYPES OF TRANSACTION HANDLED

The system handles customer payments related to express transfers and cheques (including bank drafts).

#### 3.3.4 OPERATION OF THE TRANSFER SYSTEM

The operating hours of POPS are from 7 a.m. until 3.30 p.m. CET. The end-of-day settlement of bilateral net positions, as well as the settlement of POPS gross payments, must take place in BoF-RTGS by 4 p.m. CET.

#### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

POPS is designed as a bilateral continuous system containing both net and gross settlement. Banks participating in POPS exchange payment messages bilaterally, without using a centralised clearing house or a clearing operator. POPS uses a copy of POLT for transferring payment information. All transaction information is processed in real time between the banks, and the banks credit the customer's account immediately on receipt of the payment information.

#### 3.3.6 SETTLEMENT PROCEDURES

Two types of settlement procedure are used in the system: gross and net settlement. Payments that exceed the bilaterally agreed credit limits

are settled on a gross basis directly in BoF-RTGS. Single payments within the credit limits are settled on a net basis. Banks control the size of their bilateral net positions against each of the other participants through these bilateral credit limits.

The bilateral credit limits also function as a signal which triggers the settlement of bilateral net balances during the day. Whenever the amount of a bilateral net credit position reaches the bilateral credit limit, the intraday settlement procedure is triggered. In this settlement procedure, the debtor party sends a settlement transaction via BoF-RTGS.

The credit limit is the maximum permissible amount for a bilateral net position. Transactions which would result in the net balance exceeding the credit limit are sent for gross settlement in BoF-RTGS. Since bilateral credit up to these limits is not collateralised, POPS entails a counterparty risk. However, as a result of the credit limits, the risk is clearly limited and manageable. At the end of the day bilateral balances are settled to zero by transferring the balances via BoF-RTGS.

### 3.3.7 CREDIT AND SETTLEMENT RISK

The overall maximum credit risk accepted by any bank is the sum of the bilateral credit limits it has granted. The risks involved are in fact much smaller, because of continuous debit/credit shifts in bilateral positions throughout the day and the use of gross settlement for bilateral positions and for large-value payments. Payment information on all POPS payments, both those which are included in the banks' bilateral net position and those which are settled on a gross basis in BoF-RTGS, is exchanged directly between the banks.

### 3.3.8 PRICING

New participants are charged an entrance fee, which seeks to cover the initial investment costs entailed by the design and installation of the system and any costs associated with

subsequent changes caused by the entry of newcomers. Participants bear their own costs with regard to their internal payment processing systems and data transmission.

## 3.4 THE PMJ RETAIL PAYMENT SYSTEM

PMJ is the netting system for retail payments in Finland. It is operated by the banks, and final settlement takes place in BoF-RTGS. In March 2006 there were ten institutions participating in PMJ.

In 2005 the total value of payment transfers in PMJ was €198 billion. The total number of transactions was 535 million.

### 3.4.1 OPERATING RULES

PMJ is governed by a number of agreements both between the individual system participants and between these participants and Suomen Pankki – Finlands Bank. These agreements determine the procedures for the transmission of payment and other related information between participants, establish the procedures for settlement in BoF-RTGS, lay down the procedures for participation in the system and deal with issues related to the technical infrastructure.

The timetables and procedures which apply to settlements in BoF-RTGS are specified in detail in the agreement on PMJ settlements concluded between the system participants and Suomen Pankki – Finlands Bank. The rules of BoF-RTGS, included in Suomen Pankki – Finlands Bank's rules for counterparties and account holders, form an integral part of this contract.

### 3.4.2 PARTICIPATION IN THE SYSTEM

To join the Finnish PMJ system, an applicant has to be a deposit bank and a member of the Finnish Bankers' Association. It must also pay the entrance fee and sign the relevant contracts. The new bank must also open an RTGS account in the Finnish TARGET component BoF-RTGS and thus comply with BoF-RTGS rules and the TARGET Guideline.



### 3.4.3 TYPES OF TRANSACTION HANDLED

Payment transactions processed in PMJ include credit transfers, recurrent payments (e.g. salary and pension payments), direct debits and card transactions.

Payment information related to cash withdrawals from ATMs is transmitted via Automatia Pankkiautomaatit Oy's proprietary network.

### 3.4.4 OPERATION OF THE TRANSFER SYSTEM

The transfer system is operated by banks, and there is no common multilateral clearing centre for the clearing of payments. All customer payments made from one bank or banking group to another are cleared bilaterally between banks and settled centrally in BoF-RTGS at the central bank. The transaction materials are transmitted between participants by batch file transfer using the communication network PAVE3.

### 3.4.5 TRANSACTION PROCESSING ENVIRONMENT

Most payment instructions are initiated by customers in electronic form (95% electronic, 5% paper). Electronic initiation is typically conducted outside banks by personal and corporate customers using internet-based banking applications or some other electronic means linked to the banks' systems. If paper forms are used, they are transformed into electronic messages for transmission at a branch of the sending bank. Payment orders involving the same bank are transmitted to the accounting system of the bank for booking, typically in real time, while payment orders involving other banks are collected in the sending banks' computer centres and sent in batches to the receiving banks a few times a day.

### 3.4.6 SETTLEMENT PROCEDURES

Each PMJ participant calculates its bilateral net position against every other participant and forwards the net positions to Suomen Pankki – Finlands Bank. These positions are booked on a gross basis and settled simultaneously in BoF-RTGS.

Suomen Pankki – Finlands Bank starts the settlement of the night clearing shortly after

12 a.m. CET on business days. In the event that Suomen Pankki – Finlands Bank has not received the clearing calculations (i.e. the net positions) of each clearing participant, or if the funds available on a clearing participant's settlement account are insufficient to effect the settlement, Suomen Pankki – Finlands Bank will effect the settlement shortly after 1 a.m. CET instead of 12 a.m. CET. In the event that it is not possible to effect the settlement at that time either, Suomen Pankki – Finlands Bank will check again at 2 a.m. CET to determine whether clearing participants have provided it with any new clearing calculations. On this third attempt to settle, any clearing participants that have not sent their clearing calculations to Suomen Pankki – Finlands Bank or do not have sufficient funds available on their settlement accounts will be excluded and settlement will be effected between the remaining clearing participants.

In the event that any of the clearing participants have been excluded from the settlement of the night clearing, all clearing participants must send new clearing calculations to Suomen Pankki – Finlands Bank via their respective account holder interfaces for the purpose of effecting a backup settlement at 7.30 a.m. CET.

Suomen Pankki – Finlands Bank starts the settlement of the day clearing at 2.45 p.m. CET on each business day. In the event that a settlement is to be effected behind schedule, Suomen Pankki – Finlands Bank must inform the clearing participants of the delay. In the event that a clearing participant does not have sufficient funds available on its settlement account for the purpose of effecting the settlement of the day clearing, Suomen Pankki – Finlands Bank will refrain from effecting the settlement and will inform the clearing participant of the matter. Once the clearing participant has been informed, it must, within 30 minutes, either (i) provide Suomen Pankki – Finlands Bank with the additional collateral required to raise the credit limit on its settlement account, or (ii) deposit additional funds on its



account. Otherwise, it must remain outside the settlement. The settlement will be effected by the deadline.

#### 3.4.7 CREDIT AND SETTLEMENT RISK

Each bank in the system receives the daily payment messages in batches from other banks prior to the interbank settlements at the central bank. The banks agree to credit their customers only after final interbank settlement, and the system is thus free of credit risk.

Liquidity available for PMJ settlement in BoF-RTGS consists, as for any other transaction, of free liquidity on the account, including minimum reserves, as well as unlimited, but fully collateralised, intraday credit granted by Suomen Pankki – Finlands Bank.

#### 3.4.8 PRICING

PMJ has an entrance fee, but no other fees. All banks bear their own costs; thus, PMJ works on a reciprocal basis.

### 3.5 RECENT DEVELOPMENTS

The TARGET system will be replaced by the new TARGET2 system, which will become operational on 19 November 2007. Finland will migrate to TARGET2 on 18 February 2008.

The introduction of TARGET2 and the development of the SEPA will also affect private national payment systems. According to the national SEPA migration plan,<sup>2</sup> the development of European payment instruments will require banks to be able to process all SEPA products using the same infrastructure, whether it is a question of a domestic payment within Finland or a cross-border payment within the EU. European banks consider it necessary to introduce a centralised pan-European automated clearing house (PE-ACH) in order to enable the smooth transmission of payments between all banks operating within the EU. In order to guarantee the arrival of payments at their destination, the banks belonging to the Finnish banking community should join such a clearing house or ensure the transmission of their

payments through bilateral or multilateral agreements with a bank or party that is a member of such a clearing house.

The banks are also likely to introduce the new international XML message standards, with SWIFTNet the probable network solution. The banks are also investigating new interbank settlement methods to enable the effective processing of transfers in the European payments industry.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

The Finnish securities markets comprise only equity, money and bond markets. This has been the case since 2004, when the Helsinki Stock Exchange's remaining euro-denominated derivatives trading, which is based on Finnish underlying assets, was consolidated and moved to the Stockholm Stock Exchange. Trading takes place in euro-denominated instruments, which are normally issued in book-entry form.

#### 4.1.1 TRADING ON OTC MARKETS

Most bond trading and all money market trading in Finland takes place over the counter. Despite this, interbank trades in book-entry debt securities are normally settled through APK, the Finnish CSD.

As at August 2000, ten primary dealers, including three domestic banks, guaranteed liquidity in the government bond market. Bidding procedures in this market became more efficient in June 1999, when the State Treasury switched from telephone auctions to an electronic auction system (the Bloomberg Auction System). In addition to the current 15 primary dealers, there are other market-makers for government bonds in the MTS Finland electronic market-place.

2 "Realisation of the Single Euro Payments Area in Finland – SEPA-implementation and migration plan in Finland 1.0" (<http://www.pankkiyhdistys.fi/sisalto/upload/pdf/SEPAimplementation2006.pdf>).

Including domestic branches of foreign banks, a little less than 20 banks act as market-makers, or counterparties to Suomen Pankki – Finlands Bank, in the Finnish money market. However, following the introduction of the euro, trading has increasingly been channelled through brokers to non-local counterparties. Trading mainly takes the form of outright deals in money market deposits and CDs, whereas repurchase agreements are not very common. Other instruments, such as Treasury bills, local government papers and commercial papers (CPs), have been traded to a limited degree in the secondary market.

#### 4.1.2 ORGANISED MARKET

In Finland, the trading of listed securities is concentrated on the Helsinki Stock Exchange, which has been part of the Swedish OMX Group since 2003.

The current structure of the OMX Group is the result of a process of integration whereby the Swedish company OM AB and the Finnish and Baltic area operations of the HEX Group<sup>3</sup> merged on 4 September 2003. Shares in the new company, OMHEX AB (now OMX AB),<sup>4</sup> were quoted on both the Helsinki and Stockholm stock exchanges. At the end of November 2004 OMX sold the Finnish central securities depository APK to the corresponding Swedish entity VPC. The Finnish and Swedish CSDs formed the Nordic Central Securities Depository Group (NCSD). In 2006 OMX acquired Eignarhaldsfelagid Verdbrefathing hf (EV), which is the owner of the Iceland Stock Exchange (ICEX) and the Icelandic Securities Depository.

OMX consists (as at 1 January 2006) of three business areas:

Nordic Marketplaces focuses on realising the vision of an integrated Nordic securities market and includes the OMX exchange operations in Finland, Sweden and Denmark. Securities Trading Services (Helsinki Stock Exchange) is part of this business area.

Information Services & New Markets targets business opportunities in potential new areas. This business area includes, for the time being, Information Services and OMX's Baltic markets in Estonia, Latvia and Lithuania.

Market Technology is based on the OMX Technology arm of the group and continues to focus on delivering market-place systems and services.

Exchanges established in Finland must be licensed by the Ministry of Finance. OMX Securities Trading Services (Helsinki Stock Exchange) is a regulated market-place which deals in equities, bonds, warrants and index instruments. There has been no CCP on the Helsinki Stock Exchange since 2004, when the Helsinki Stock Exchange's euro-denominated derivatives trading, which is based on Finnish underlying assets, was consolidated and moved to the Stockholm Stock Exchange. The bulk of derivatives trading had already been transferred to Eurex Frankfurt AG in September 1999, with Finnish brokers becoming non-clearing members of Eurex Clearing AG.

The OMX Group is owned mainly by Swedish institutions, with Investor AB (10.9%), Robur AB (6.8%), the Swedish state (6.8%), Alecta (6.2%) and Nordea (11.2%) holding the largest shares at the end of 2005. As a former owner, Suomen Pankki – Finlands Bank gave up its holdings in 2003.

#### 4.1.3 ORGANISED TRADING

The trading day of the Helsinki Stock Exchange starts with pretrading. During the pretrade session, manual trades – called “after-market II trades” in this phase – and pre-opening trades can be recorded. In addition, order management and order entry for opening call takes place.

The formation of opening, closing and intraday calls comprises three sub-phases: precall, call

<sup>3</sup> In 1998 the Helsinki Exchanges (HEX) and APK merged to form the HEX Group (Helsinki Exchanges Group plc).

<sup>4</sup> OMHEX AB changed its name to OMX AB on 31 August 2004.

interaction and uncross. The precall phase enables order management without any market transparency. The call interaction phase allows order management with increased market transparency. The final price determination and allocation takes place in uncross. Thus, order management in opening call continues when the order book shifts from pretrading to either call interaction in equities (open call) or precall in related instruments (hidden call). Overlapping times between call inner phases and continuous trading are explained by the sequential start of the continuous trading. When the first order books are shifted to continuous trading, order management with order books continues still in call.

Continuous trading begins at 9 a.m. CET and currently lasts until 5 p.m. CET. The continuous trading session is divided into round lot and odd lot trading in automatic order matching. Manual trades, when the criteria for contract transactions are met, can also be concluded.

Order management and manual trade registration is prevented during a brief termination phase after the closing call.

During the post-trade session manual trades – called “after-market I trades” in this phase – can be concluded. In addition, order management is possible, allowing the cancellation of, as well as some changes to, orders.

The trading members of the Helsinki Stock Exchange comprise 50 equity brokers, an increasing number of which operate as remote members of the exchange. The Helsinki Stock Exchange accepts both banks and brokerage companies as members.

At the beginning of 2006 137 companies were listed in the Helsinki Stock Exchange’s four lists (Main List, I List, NM List and Pre List). There were only five new listings in 2005, and the same number of companies were delisted. Turnover in equities trading totalled €223.4 billion. In 2004 turnover totalled €180.1 billion. OMX launched its Nordic List

on 2 October 2006. The Nordic List has harmonised listing requirements for the exchanges in Copenhagen, Helsinki and Stockholm and includes all companies listed on those exchanges. The Nordic List has replaced the individual lists in the participating exchanges.

In October 2004 OMX harmonised the names of the exchange indices in Copenhagen, Helsinki, Stockholm, Tallinn, Riga and Vilnius. Moreover, all of OMX’s exchanges have introduced a uniform international standard for the sector classification of listed securities (GICS).

Mutual fund units are not traded directly on the exchange, but the exchange’s information system disseminates their end-of-day valuation data.

#### **4.1.4 TRADING SYSTEM OF THE HELSINKI STOCK EXCHANGE**

The OMX SAXESS trading system replaced the HETI trading system in 2004. Trading became fully electronic in the Helsinki Stock Exchange in April 1990, when the daily call auction practice was discontinued. At present SAXESS offers electronic real-time trading for (outright) sales or purchases of shares, subscription rights, bonds, warrants and convertible bonds. It also allows securities lending. SAXESS is an order-driven system, in which outstanding bids and offers are displayed to the trading members. The trading system is located in Sweden.

##### ***Order-routing system***

Trading rights are used by exchange traders. An automatic order routing right constitutes an entitlement to place orders in the process by which clients’ orders are electronically and automatically routed directly to the trading system through internet connections or other IT links between the trading member and the client. An automated trading right constitutes an entitlement to participate in trading through automated software, which automatically generates a large number of orders in response to specific preprogramme factors.

Partially matched or unmatched equilibrium price orders are cancelled.

### Matching

In continuous trading, orders are divided into round lot trading and odd lot trading according to the specific lot size for the security in question.

Share allocation is on the basis of the “price-internal-time” principle. In that allocation, orders better than equilibrium price are always filled. In the event of an imbalance, orders at the last price level eligible for matching are filled first by using internal priority. The order on the deficit side with the best priority constitutes the first “preferred party”, and then possible orders of the preferred party on the surplus side at the last price level are matched against the orders of the preferred party on the deficit side. If the deficit side is not fully matched, the next preferred party is selected and orders are matched according to the same principles. Orders at the last price level eligible for matching are then filled by using time priority if there are still orders on the deficit side after allocation on the basis of internal priority.

In round lot trading, each new incoming order is immediately checked for execution against orders on the other side of the order book. Orders can be executed in full or in part, or not at all. Orders in the order book are executed in accordance with the “price-internal-time” principle.

For odd lots, orders are sorted in the trading system in accordance with the “price-time” principle. However, order time priority has no effect on the matching of odd lot orders. The matching of odd lot orders is based on optimisation, in which the number of shares traded in each odd lot matching session is maximised. Odd lot orders are matched only at the price of the last round lot trade. All odd lot orders that have a price equal to or more generous than the latest paid price take part in the matching.

The Helsinki Stock Exchange commenced trading in round lots of one share in September 2006. Before that, the size of a round lot in trading varied by company, ranging from 10 to 2,000 shares. Trading in round lots of one share is a European standard, and its adoption is expected to further increase the efficiency of securities trading, with particular benefits for small investors.

All manual trades must be reported to the exchange immediately. Reporting takes place via a member’s electronic connection to the trading system.

Matched transactions become effective as trades, which are confirmed to both parties at the end of the execution cycle.

All stock, warrant and bond trades executed on the Helsinki Exchange are cleared centrally by APK in its HEXClear system, to which trades (of book-entry securities) are automatically transferred for settlement.

## 4.2 CLEARING

There are no independent clearing houses in Finland (see above).

## 4.3 SETTLEMENT

### 4.3.1 INSTITUTIONAL AND LEGAL ASPECTS

The changeover from physical securities to a book-entry system began in 1992. Initially, the book-entry system was decentralised, meaning that different entities could function as book-entry registrars in different information systems, subject to licensing by the Ministry of Finance. The system for book-entry equity securities was spread between different IT environments, mostly maintained by banks, and the centralised shareholder register was maintained by the Central Share Register of Finland Co-operative. By contrast, the system for book-entry debt securities was concentrated in a single IT environment maintained by Helsinki Money Market Center Ltd. The Securities Association

was set up to coordinate the activities of the decentralised book-entry system.

In spring 1996 the Finnish government, Suomen Pankki – Finlands Bank and the main market participants from the private sector agreed to combine the existing Finnish book-entry systems into one institution, Suomen Arvopaperikeskus Oy. APK was established as a limited liability company and is consequently governed by the provisions of the Finnish Companies Act, unless otherwise prescribed in the Act on the book-entry system (826/1991, as amended – most recently by amendment 304/2005) or in other legislation pertaining to APK. Before VPC's acquisition the private sector owned 60% of APK and the public sector owned 40%, with Suomen Pankki – Finlands Bank being the largest single owner (with a holding of 24.4%).

At the end of 1996 APK acquired the business operations of the Helsinki Money Market Center and the Central Share Register of Finland Cooperative, as well as the clearing and settlement operations of the Helsinki Stock Exchange. The operations of the Securities Association were transferred to APK under a legal reform that became effective on 1 January 1997. On the same date APK commenced actual operations on the basis of existing systems.

In addition to being legally designated as the Finnish national CSD, APK was granted a licence to operate as a CSD by the Council of State on 30 December 1996. APK is the only CSD holding such a licence in Finland (although the law would allow several CSDs), as well as being the only SSS operator. The Council of State has the power to restrict or withdraw APK's licence. Furthermore, the Ministry of Finance endorses APK's Rules and Regulations, including regulations on clearing, after first consulting Suomen Pankki – Finlands Bank and the FSA.

At the end of 1998 the HEX Group was established as the parent company of APK, with all former shareholders of APK becoming

shareholders of the parent company. The functions of APK remained unchanged.

The NCSD, the Nordic Central Securities Depository, was created through the consolidation of the Swedish central securities depository VPC AB and Suomen Arvopaperikeskus Oy. VPC bought (from OMX) all of the shares in APK (see Section 4.1.2) in December 2004 and now trades under the NCSD trademark. Thus, the NCSD Group has VPC as its parent company and APK as a wholly owned subsidiary.

For the historical reasons outlined above, APK's SSS consists of two technically separate sub-systems, namely:

- the RM system, used for settling money market instruments and most debt securities; and
- the OM system, used for settling shares, other equity-related securities and some debt securities.

The RM system is technically centralised and administered by APK. Trades are settled in a continuous RTGS process in central bank money.

APK replaced the old clearing and settlement system of the OM system (KATI) with the HEXClear system at the end of 2003. HEXClear is an RTGS system which settles in central bank money. It has reduced risks in equities clearing and settlement and has increased the reliability of post-trade processing. Compared with the earlier clearing and settlement system, HEXClear permits greater flexibility in both the operations of APK and the settlement members' activities during the settlement day, as well as enabling greater opportunities as regards the liquidity management of the clearing members.

The NCSD has a project called Nordic Single, which seeks to establish one single settlement process for the Nordic countries (Finland,

Sweden, Denmark and Norway) and for all instruments. The NCSD has discussed these plans in two working groups consisting of market participants. These working groups launched a consultation paper on the Nordic clearing and settlement model in January 2006. This paper was available for public consultation until mid-March 2006. Suomen Pankki – Finlands Bank also commented on the model. If the NCSD builds one single Nordic clearing and settlement model, this new system will replace the current separate RM and OM systems.

Since October 2000 all book-entry registers have been centralised at APK, with APK being the only book-entry registrar. That centralisation required an amendment to the Act on the book-entry system. Nowadays APK grants the right to act as an account operator authorised to make entries in APK's book-entry register. The Council of State still grants the licence required to operate as a CSD, and the Ministry of Finance grants the licence needed to operate as a clearing organisation.

Other important pieces of legislation governing the functioning of the SSS are as follows.

- The operations of APK and the functioning of the book-entry system are based on special legislation enacted to allow securities dematerialisation. The Act on the book-entry system mainly contains provisions on organisational aspects of the book-entry system (including provisions on the status of APK, other book-entry registrars and international links), the responsibilities of participants in the book-entry system, financial requirements for covering liabilities and secrecy requirements.
- The Act on book-entry accounts (827/1991, as amended – most recently by amendment 13/2004) contains provisions on the operation of book-entry accounts, the entries in these accounts and the legal effects of these entries, as well as provisions on strict liability for errors in the book-entry system.

The Act also contains provisions on the secured position of a bona fide buyer against the seller's creditors and other third parties.

As a statutory self-regulating organisation, APK also regulates and supervises the book-entry system. Furthermore, it is responsible for developing the book-entry system as a whole. APK and account operators (former book-entry registrars) are subject to supervision by the FSA. APK is also required to have two authorised public accountants.

A government proposal on provisions concerning clearing and settlement activities was included in the Securities Markets Act in 1998, in respect of which the EMI delivered an Opinion. Under these provisions, clearing and settlement are subject to separate authorisation by the Ministry of Finance and supervision by the FSA. APK is legally authorised to operate as a clearing house and is required to restrict its operations to securities administration, processing, clearing and settlement functions. As regards clearing and settlement activities, it is expressly stated in the above-mentioned Act that the other activities of a clearing house must not endanger its clearing activities. In addition, APK is legally obliged to accept its own members as clearing members in the clearing and settlement system.

APK is required by law to act as a registrar for any international links between CSDs. The Ministry of Finance drafted an amendment to the Act on the book-entry system concerning such links. That amendment came into force in 1999.

Under the amended Act, proprietary rights to securities deposited in a foreign CSD can be transferred to the Finnish book-entry system as proprietary rights. This requires a link agreement between APK and the foreign CSD, enabling foreign securities to be transferred and pledged in Finland in accordance with the provisions governing the Finnish book-entry system



without necessitating any changes in the accounting system of the foreign CSD.

The Act on the Bank of Finland (214/1998) provides that the Finnish central bank has a general duty to help to maintain the reliability and efficiency of Finnish payment and financial systems. Suomen Pankki – Finlands Bank thus has a role to play in the general oversight of APK. APK is required to immediately inform Suomen Pankki – Finlands Bank of any malfunctions and other problems and to subsequently submit a detailed follow-up report. Furthermore, in January 2006 Suomen Pankki – Finlands Bank and Sveriges Riksbank signed a memorandum of understanding on cooperation in the oversight of VPC and APK in order to ensure efficient and effective oversight of the NCSD. This memorandum of understanding designates no lead overseer. Suomen Pankki – Finlands Bank is responsible for the oversight of APK, and Sveriges Riksbank is responsible for the oversight of VPC.

APK is supervised by the FSA, which operates in connection with Suomen Pankki – Finlands Bank on the basis of a separate Act on the Financial Supervision Authority (587/2003). In general terms, the duties of the FSA include compliance supervision for the supervised entities, regulation, on-site inspections and the monitoring of financial markets. The FSA also has the right to grant licences to banks and investment service firms.

The FSA conducts inspections on the basis of its own guidelines. By virtue of its supervision of compliance with the Act on the book-entry system, the FSA also supervises international links in which APK is involved.

The rules of APK are enforceable, and clearing parties undertake to accept and comply with them in their membership agreements with APK. APK fulfils the requirements of the Settlement Finality Directive.

#### 4.3.2 OPERATIONAL ASPECTS

All stock, warrant and bond trades effected on the Helsinki Exchanges are cleared centrally by APK. Shareholdings have been recorded in investors' book-entry accounts in the centralised book-entry register maintained by APK since October 2000.

The normal settlement period for equities and bonds is T+3, but the parties may jointly agree on other settlement conventions. The standard settlement period for money market transactions is T+2.

##### *Equity settlement*

Book-entry equity transactions are settled in APK's OM system. Equity trades executed in the Helsinki Stock Exchange's SAXESS trading system are automatically transferred to APK's HEXClear system for clearing and settlement.

Trades are settled in the HEXClear system either in an optimisation process or in a continuous trade-by-trade settlement. The optimisation process aims to maximise the number of trades settled simultaneously and takes place at specified times in the form of batch runs during a settlement day. In other words, optimisation is used to establish whether a number of transactions can be settled together, even though it would not be possible to settle them individually. The RTGS process settles the trades on a gross basis, and monitoring is undertaken at regular intervals throughout the settlement day in order to ascertain whether the transactions that are waiting can be settled and to confirm those that fulfil the criteria (funds and assets). Transactions that cannot be settled are transferred forward again for settlement either on a trade-by-trade basis or in the optimisation process. Book entries and payments are always remitted gross in both settlement processes.

The HEXClear system provides preliminary information about the settlement probabilities of trades on S-1 and on the morning of the settlement day. Trades are settled in HEXClear between 9 a.m. and 4.30 p.m. CET, and the



system is open on Finnish banking days between 6 a.m. and 8 p.m. CET. Settlement begins with an optimisation process at 9 a.m. CET, and the majority of trades are settled in this first daily optimisation process. After the first optimisation process, settlement continues, taking advantage of RTGS and recurrent optimisation processes. Money transactions are in euro and processed via APK's client funds account in the BoF-RTGS system. Thus, settlement always takes place in central bank money. Furthermore, settlement is final as soon as the book entries have been registered in the receiver's account and the funds have been paid to the receiving party in the technical sub-account maintained by APK on its account in BoF-RTGS.

Equity transactions not executed in the Helsinki Stock Exchange can also be settled in HEXClear. Brokers enter these transactions in HEXClear, and these are settled in the same settlement process as other equity transactions.

#### ***Bond and money market settlement***

Book-entry bond and money market instrument operations can be settled with intraday finality in APK's RM system. Instructions for real-time trade-for-trade settlement are accepted continuously during the operating hours of the RM system.

As is normal in RTGS systems, settlement is final as soon as the book entries have been registered in the receiver's account and the funds have been transferred to the name of the receiving party in the technical sub-account which the CSD maintains on its RTGS account at the central bank. On the settlement date the funds are transferred via BoF-RTGS from the buyer's cash account with the clearing party to the buyer's account in the RM system. The actual transfer of funds is made at the same time as the transfer of securities between the buyer's and seller's book-entry accounts in the RM system. The transfer of funds takes place only if the securities are available for delivery from the seller's account. The seller can repatriate its funds from the RM system to any

bank holding an account with TARGET at its own initiative.

Under the rules of APK, the clearing party must have sufficient amounts of securities for delivery or sufficient funds for payment by 2 p.m. CET on the settlement day. Same-day turnarounds are possible in the RM system. At present, the operating hours of the RM system are from 7 a.m. to 6 p.m. CET on TARGET days.

#### ***Recurrent events***

##### **– Entitlements**

Entitlements comprise dividends, subscription rights, bonus issue shares and shares resulting from stock splits, etc. Entitlements follow the trade date rule, whereby the entitlement is transferred in accordance with the trade date of the transaction. If the trade date is prior to the ex-date, the entitlements are transferred from the seller to the buyer. Entitlements automatically follow the original trade if the trade is settled on or prior to the record date. If a trade with a trade date prior to the record date is settled after the record date (i.e. a trade is concluded cum-entitlement), the delivering party is responsible for transferring the securities together with the entitlements. If the trading parties have agreed to a settlement period other than T+3, the customers must instruct the clearing party as to how the entitlements should be transferred.

##### **– Interest and redemptions**

Interest and redemption entitlements are paid to the holder of the bonds or money market instruments on the payment date, regardless of the trade date. If a trade which has a settlement date prior to the payment date is settled on or after the payment date, the interest or redemption entitlement is transferred from the seller to the buyer.

### Links

For the purpose of transferring cross-border collateral, APK established a direct link with Deutsche Börse Clearing, now Clearstream Banking Frankfurt (Germany), in December 1998/January 1999. That link was limited to debt instruments (i.e. APK's RM system) in the first phase and was subsequently expanded to include equity instruments in September 1999. The link has been operated on a two-way basis since the beginning of 2000. APK also established a two-way debt instrument link with Sicovam SA, now Euroclear France, in September 1999. Furthermore, APK has links with Euroclear Nederland, VPC in Sweden and EVK in Estonia. These three links are used for equity instruments only.

Messages concerning trades are conveyed between the securities depositories via the SWIFT network. RTGS is well suited to the cross-border transfer of securities. The settlement of link transactions between APK's OM system and foreign SSSs is integrated with the HEXClear system, and all link transactions are settled in RTGS processes between 8 a.m. and 4 p.m. CET.

The links between APK's RM system and foreign SSSs are based on real-time procedures. This ensures that a delivery is debited from the delivering party's account at the same time as it is credited to the omnibus account of the receiving SSS, and from there to the buying party's account in the recipient country.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY SUOMEN PANKKI – FINLANDS BANK

The main method of collateralisation used in the national central bank's operations is pooling. Credit operations are normally carried out against pooled assets, but in exceptional cases Suomen Pankki – Finlands Bank can also conduct repos for credit operations.

The pool of assets pledged to Suomen Pankki – Finlands Bank allows a counterparty to deliver

collateral to its pool on an FOP basis and independently of any request for credit. The total collateral requirement of each individual counterparty consists of all monetary policy operations, including interest thereon, together with its intraday credit requirement. The collateral pool of a counterparty consists of the value of the counterparty's collateral – both domestic and cross-border – after the application of the appropriate haircuts to the market value of securities. Suomen Pankki – Finlands Bank evaluates the collateral material and checks that the total amount of collateral available in the pool is always sufficient to cover the credit granted to the counterparty.

APK acts as the depository for all eligible Finnish securities. Foreign collateral can be delivered either through the CCBM or through approved links. Although the use of foreign collateral by Finnish counterparties has increased markedly over the last few years, it varies greatly from one counterparty to another.



## GLOSSARY<sup>1</sup>

Term	Definition
<b>Acceptance for settlement:</b>	the stage in the processing of a payment at which it has passed all risk management and other tests and can be settled under the system's rules and procedures.
<b>Access:</b>	the right of or opportunity for an institution to use the services of a particular payment or securities settlement system to settle payments/ transactions on its own account or for customers. See also <i>Participant in an IFTS, Direct participant in an IFTS, Indirect participant</i> .
<b>Acquirer:</b>	entity or entities holding deposit accounts for card acceptors (retailers) and to which the card acceptor transmits the data relating to the transaction. The acquirer is responsible for the collection of transaction information and settlement with the acceptors.
<b>Acquiring technical operator:</b>	the party providing the technical facilities for each acquiring entity to accept the data relating to each transaction.
<b>Ancillary system:</b>	a system in which payments or securities are exchanged and/or cleared, while the ensuing monetary obligations are settled in another system, typically an RTGS system.
<b>Asymmetric cryptography:</b>	a set of cryptographic techniques in which two different keys (private and public keys) are used for encrypting and decrypting data. The private key is kept secret by its holder, while the public key is made available to communicating entities. Also called "public key cryptography".
<b>Authentication:</b>	the methods used to verify the origin of a message or to verify the identity of a participant connected to a system and to confirm that a message has not been modified or replaced in transit.
<b>Automated clearing house (ACH):</b>	an electronic clearing system in which payment orders are exchanged among financial institutions, primarily by using magnetic media or via telecommunication networks, and handled by a data processing centre. See also <i>Clearing/clearance</i> .
<b>Automated teller machine (ATM):</b>	an electromechanical device which permits authorised users, typically using machine-readable plastic cards, to withdraw cash from their accounts and/or access other services (allowing them, for example, to make balance enquiries, transfer funds or make deposits). ATMs may be operated either online, with real-time access to an authorisation database, or offline.
<b>Availability:</b>	criterion for evaluating a system on the basis of its backup facilities and the possibility of switching over to them.
<b>Balance-based system:</b>	an electronic money system in which the electronic funds are stored on a device as a numerical ledger, with transactions performed as debits from or credits to a balance.
<b>Bank draft:</b>	a term which generally refers to a draft drawn by a bank on itself. The draft is purchased by the payer and sent to the payee, which presents it to its bank for payment. That bank presents it to the payer's bank for reimbursement. See also <i>Draft</i> .
<b>Bank Identifier Code (BIC):</b>	a universal means of identifying financial institutions in order to facilitate the automated processing of telecommunication messages in financial environments.

<sup>1</sup> The terms and definitions contained in this glossary are the same as those in previous editions of the Blue Book. However, the Eurosystem is currently revising and updating these definitions. Once this process has been completed, the new definitions will supersede those in this glossary.

Term	Definition
<b>Batch processing:</b>	the transmission or processing of a group of payment orders and/or securities transfer instructions in batches at discrete intervals of time.
<b>Beneficial ownership/ interest:</b>	the entitlement to receive some or all of the benefits of ownership of a security or other financial instrument (e.g. income, voting rights and power to transfer). Beneficial ownership is usually distinguished from “legal ownership” of a security or financial instrument.
<b>Bilateral credit limit:</b>	see <i>Credit limit</i> .
<b>Bilateral exposure:</b>	one party’s exposure to another party. See also <i>Credit risk/exposure</i> .
<b>Bilateral net settlement system:</b>	a settlement system in which participants’ bilateral net settlement positions are settled between each bilateral combination of participants. See also <i>Net credit (or net debit) position</i> .
<b>Bilateral netting:</b>	an arrangement between two parties to net their bilateral obligations. The obligations covered by the arrangement may arise from financial contracts, transfers, or both. See also <i>Netting, Multilateral netting, Net settlement</i> .
<b>Bill of exchange:</b>	a written order from one party (the drawer) to another (the drawee) to pay a specified sum on demand or on a specified date to the drawer or to a third party specified by the drawer. Widely used to finance trade and, when discounted with a financial institution, to obtain credit. See also <i>Draft</i> .
<b>Book-entry system:</b>	an accounting system which permits the transfer of claims without the physical movement of paper documents or certificates (e.g. electronic transfer of securities). See also <i>Debt book-entry system, Share book-entry system, Dematerialisation, Immobilisation</i> .
<b>Broker:</b>	a firm which communicates bid and offer levels to potential principals and otherwise arranges transactions as agent for a fee, without acting as a party to the transactions.
<b>Broker-dealer:</b>	a person or firm sometimes acting as broker and sometimes as principal intermediary in securities transactions. See also <i>Broker</i> .
<b>Bulk funds transfer system:</b>	see <i>Retail funds transfer system</i> .
<b>Business continuity:</b>	a payment system or securities settlement system arrangement which aims to ensure that the system in question meets agreed service levels even if one or more components of the system fail or it is affected by another abnormal event. This includes both preventative measures and arrangements to deal with these events.
<b>Capital risk:</b>	see <i>Principal risk</i> .
<b>Caps:</b>	quantitative limits on the funds transfer activity of individual participants in a system; limits may be set by each individual participant or may be imposed by the body managing the system. Limits can be placed on the net debit position or net credit position of participants in the system.
<b>Card:</b>	see <i>Cash card, Cheque guarantee card, Chip card, Credit card, Debit card, Delayed debit card, Prepaid card, Retailer card, Travel and entertainment card</i> .
<b>Card-based products:</b>	electronic money products which provide the customer with a portable, specialised computer device, typically an IC card containing a microprocessor chip. See also <i>IC (integrated circuit) card</i> .
<b>Cash card:</b>	card for use only in ATMs or cash dispensers. (Other cards often have a cash function which permits the holder to withdraw cash.)

Term	Definition
<b>Cash correspondents:</b>	banks (or similar institutions) used by the SSS to make or receive payments.
<b>Cash dispenser:</b>	an electromechanical device which permits consumers, typically using machine-readable plastic cards, to withdraw banknotes (currency) and, in some cases, coins. See also <i>Automated teller machine (ATM)</i> .
<b>Cashier's cheque:</b>	see <i>Bank draft</i> .
<b>Central bank bills:</b>	short-term securities issued by the central bank; can be marketable or tradable.
<b>Central bank credit (liquidity) facility:</b>	a standing credit facility at a central bank which can be drawn upon by certain designated account holders (e.g. banks). The facility can be used automatically at the initiative of the account holder. The loans typically take the form of either advances or overdrafts on an account holder's current account. These may be secured by a pledge of securities or by repurchase agreements. See also <i>Daylight credit (or daylight overdraft, daylight exposure, intraday credit), Marginal lending facility</i> .
<b>Central counterparty:</b>	an entity which interposes itself as the buyer to every seller and as the seller to every buyer for a specified set of contracts.
<b>Central securities depository (CSD):</b>	an entity which holds and administers securities and enables securities transactions to be processed by book entry. Securities can be held in a physical but immobilised or dematerialised form (i.e. such that they exist only as electronic records). In addition to the safekeeping and administration of securities, a CSD may incorporate clearing and settlement functions.
<b>Certification authority:</b>	an entity entrusted with creating and assigning public key certificates.
<b>Chaining:</b>	a method used in certain transfer systems (mostly for securities) for processing instructions. It involves the manipulation of the sequence in which transfer instructions are processed in order to increase the number or value of transfers which may be settled with available funds and/or securities balances (or available credit or securities lending lines).
<b>Charge card:</b>	see <i>Travel and entertainment card</i> .
<b>Cheque:</b>	a written order from one party (the drawer) to another (the drawee; normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling debts and withdrawing money from banks. See also <i>Bill of exchange</i> .
<b>Cheque guarantee card:</b>	a card issued as part of a cheque guarantee system. This function may be combined with other functions in the same card, e.g. those of a cash card or debit card. See also <i>Cheque guarantee system</i> .
<b>Cheque guarantee system:</b>	a system to guarantee cheques, typically up to a specified amount, which have been validated by the retailer either on the basis of a card issued to the cheque writer or through a central database accessible to retailers. Validated cheques are guaranteed by the issuer of the guarantee card, the drawee bank or the system operator.
<b>Chip card:</b>	also known as an "IC (integrated circuit) card". A card containing one or more computer chips or integrated circuits for identification, data storage or special-purpose processing used to validate personal identification numbers (PINs), authorise purchases, verify account balances and store personal records. In some cases, the memory in the card is updated every time the card is used (e.g. an account balance is updated).

Term	Definition
<b>Clearing/ clearance:</b>	the process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including the netting of instructions and the establishment of final positions for settlement. Sometimes the terms are used (imprecisely) to include settlement.
<b>Clearing and settling institution:</b>	an institution which transmits information and funds through a payment system network. It may operate as an agent or a principal.
<b>Clearing house:</b>	a department of an exchange or a separate legal entity which provides a range of services related both to the clearing and settlement of transactions and payments and to the management of risks associated with the resulting contracts. In many cases, the clearing house acts as central counterparty. See also <i>Central counterparty</i> , <i>Clearing/ clearance</i> .
<b>Clearing system:</b>	a set of procedures whereby financial institutions present and exchange data and/or documents relating to funds or securities transfers to other financial institutions. The procedures often also include a mechanism for the calculation of participants' bilateral and/or multilateral net positions with a view to facilitating the settlement of their obligations on a net or net net basis. See also <i>Netting</i> .
<b>Closed network:</b>	telecommunications network used for a specific purpose, such as a payment system, and to which access is restricted.
<b>Close-out netting:</b>	a special form of netting which occurs following a number of predefined events (e.g. defaults). Close-out netting is intended to reduce exposures on open contracts if one party falls foul of certain conditions specified by the contract (e.g. by becoming subject to insolvency procedures) before the settlement date. (This is also referred to as "default netting", "open contract netting" or "replacement contract netting".)
<b>Collateral:</b>	assets pledged as a guarantee for the repayment of the short-term liquidity loans which credit institutions receive from central banks, as well as the assets sold to central banks by credit institutions as part of repurchase operations.
<b>Collateral pool:</b>	pool account on which a pooling system's participant holds securities pledged in favour of the central bank in charge of the system when obtaining credit (for intraday, overnight or monetary policy operations). See also <i>Collateral pooling system</i> .
<b>Collateral pooling system:</b>	a central bank system for managing collateral whereby counterparties open a pool account in which they deposit assets to serve as collateral in their transactions with the central bank. In a pooling system, by contrast with an earmarking system, the underlying assets are not earmarked for individual transactions. See also <i>Collateral pool</i> .
<b>Computer-based terminal (CBT):</b>	a network interface device, provided and operated by the user, consisting of both hardware and software.
<b>Confidentiality:</b>	the quality of being protected against unauthorised disclosure.
<b>Confirmation:</b>	a particular connotation of this widely used term is the process whereby a market participant notifies its counterparties or customers of the details of a trade and, typically, allows them time to confirm or question the trade.



Term	Definition
<b>Correspondent banking:</b>	an arrangement under which one bank provides payment services and other services to another bank. Payments through correspondents are often executed through reciprocal accounts (nostro and loro accounts), to which standing credit lines may be attached. Correspondent banking services are primarily provided across international boundaries, but are also found as agency relationships in some domestic contexts. “Loro account” is the term used by a correspondent to describe an account held on behalf of a foreign bank; the foreign bank would regard this account as its “nostro account”.
<b>Correspondent central banking model (CCBM):</b>	a model established by the European System of Central Banks with the aim of enabling counterparties to transfer eligible assets as collateral in a cross-border context. In the CCBM, NCBs act as custodians for one another. This means that each NCB has a securities account in its securities administration for each of the other NCBs (and for the European Central Bank).
<b>Counterparty:</b>	the opposite party in a financial transaction (e.g. the other party in any transaction with the central bank).
<b>Credit caps:</b>	see <i>Caps</i> .
<b>Credit card:</b>	a card indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit, and the holder is sometimes charged an annual fee.
<b>Credit card company:</b>	a company which owns the trademark of a particular credit card, and may also provide a number of marketing, processing or other services to members using the card services.
<b>Credit institution:</b>	a credit institution is an institution covered by the definition contained in Article 1(1) of Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions, i.e. “an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credits for its own account”.
<b>Credit limit:</b>	the limit on the credit exposure which a payment system participant incurs vis-à-vis another participant (bilateral credit limit) or vis-à-vis all other participants (multilateral credit limit) as a result of receiving payments which have not yet been settled.
<b>Credit risk/exposure:</b>	the risk that a counterparty will not settle an obligation in full, either when due or at any time thereafter. In exchange-for-value systems, credit risk is generally defined as including replacement cost risk and principal risk.
<b>Credit transfer:</b>	a payment order or, occasionally, a sequence of payment orders, made for the purpose of placing funds at the disposal of a beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.
<b>Credit transfer system:</b>	a funds transfer system through which payment orders move from (the bank of) the originator of the transfer message or payer to (the bank of) the receiver of the message or beneficiary.
<b>Cross-border netting scheme:</b>	an arrangement to net positions or obligations between or among parties in more than one country or jurisdiction. See also <i>Netting</i> .
<b>Cross-border settlement:</b>	settlement which takes place in a country other than the country or countries in which one or both of the parties to the trade are located.



Term	Definition
<b>Cross-system settlement:</b>	settlement of a trade which is effected through a link between two separate securities transfer systems.
<b>Cryptography:</b>	the application of mathematical methods to develop techniques and algorithms which can be applied to data in order to ensure goals such as confidentiality, data integrity and/or authentication.
<b>Current exposure:</b>	the loss that would be incurred today on a contract or set of contracts if a counterparty failed to perform on its obligations. Also known as “replacement cost”, current exposure is what it would cost to replace a given contract if the counterparty defaulted today.
<b>Custodian:</b>	an entity, often a bank, which is responsible for the safekeeping and administration of securities and other financial assets on behalf of others and which may also provide various other services, including clearance and settlement, cash management, foreign exchange and securities lending.
<b>Custody:</b>	the safekeeping and administration of securities and financial instruments on behalf of others.
<b>Custody risk:</b>	the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent actions of the entity responsible for the safekeeping of the securities.
<b>Customer-to-customer transfer:</b>	see <i>Transferability</i> .
<b>Daily processing:</b>	the complete cycle of processing tasks which needs to be completed in a typical business day, from start-of-day procedures to end-of-day procedures, including the backing up of data.
<b>Daily settlement:</b>	the completion of settlement on the day of value of all payments accepted for settlement.
<b>Day of value:</b>	the day on which a payment is due to be credited to the receiving participant in the payment system. The day of value for the receiving participant’s customer (i.e. the day on which the receiving participant credits the customer in its books) may or may not be the same day, depending on specific arrangements or local practice.
<b>Daylight credit (or daylight overdraft, daylight exposure, intraday credit):</b>	credit extended for a period of less than one business day. Daylight credit may be extended by central banks to even out mismatches in payment settlements. In a credit transfer system with end-of-day final settlement, daylight credit is, in effect, extended by a receiving institution if it accepts and acts on a payment order even though it will not receive final funds until the end of the business day.
<b>Dealer:</b>	a firm that enters into transactions as a counterparty on both sides of the market in one or more products. OTC derivatives dealers are primarily large international financial institutions – mostly commercial banks, but also, occasionally, securities firms and insurance companies. A few are affiliates of what are primarily non-financial firms.
<b>Debit caps:</b>	see <i>Caps</i> .
<b>Debit card:</b>	a card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution. (This may sometimes be combined with another function, e.g. that of a cash card or cheque guarantee card.)
<b>Debit transfer system:</b>	a funds transfer system in which debit collection orders made or authorised by the payer move from (the bank of) the payee to (the bank of) the payer and result in a charge (debit) to the account of the payer; for example, cheque-based systems are typical debit transfer systems. Also called a “debit collection system”.

Term	Definition
<b>Debt book-entry system:</b>	a computerised system for the issue and registration of debt securities in book-entry form. See also <i>Book-entry system</i> , <i>Share book-entry system</i> .
<b>Default:</b>	the failure to complete a funds or securities transfer in accordance with its terms for reasons which are not technical or temporary, usually as a result of bankruptcy. Default is usually distinguished from a “failed transaction”.
<b>Defaulter pays:</b>	a loss-sharing arrangement whereby each participant is required to collateralise any exposures which it creates for other participants. As a result, losses from a party’s default are borne by the defaulting party.
<b>Deferred net settlement system:</b>	a system which effects the settlement of obligations or transfers between or among parties on a net basis at some later time.
<b>Delayed debit card:</b>	a card issued by banks indicating that the holder may charge his account up to an authorised limit. It allows holders to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.
<b>Delivery:</b>	final transfer of a security or financial instrument.
<b>Delivery-versus-payment system (or delivery against payment; DvP):</b>	a mechanism in an exchange-for-value settlement system which ensures that the final transfer of one asset occurs if, and only if, the final transfer of another asset (or other assets) occurs. Assets could include securities or other financial instruments.
<b>Dematerialisation:</b>	the elimination of physical certificates or documents of title which represent ownership of securities so that securities exist only as accounting records.
<b>Depository:</b>	an agent with the primary role of recording securities either physically or electronically and keeping records of the ownership of these securities.
<b>Deposit facility:</b>	a standing facility of the Eurosystem which counterparties may use to make overnight deposits at an NCB and which are remunerated at a pre-specified interest rate.
<b>Derivative:</b>	a financial contract, the value of which depends on the value of one or more underlying reference assets, rates or indices. For analytical purposes, all derivatives contracts can be divided into basic building blocks of forward contracts, options or combinations thereof.
<b>Digital signature:</b>	a string of data, generated by a cryptographic method, which is attached to a message in order to ensure its authenticity and protect the recipient against repudiation by the sender.
<b>Direct debit:</b>	a pre-authorised debit on the payer’s bank account initiated by the payee.
<b>Direct participant in an IFTS:</b>	a participant in an interbank funds transfer system (IFTS) which is responsible to the settlement agent (or to all other direct participants) for the settlement of its own payments, those of its customers, and those of the indirect participants on whose behalf it is settling.
<b>Discharge:</b>	the release from a legal obligation imposed by contract or law.
<b>Disclosure:</b>	see <i>Public disclosure</i> .
<b>Domestic settlement:</b>	settlement which takes place in the country in which both parties to the trade are located.
<b>Domestic trade:</b>	a trade between parties located in the same country.

Term	Definition
<b>Draft:</b>	a written order from one party (the drawer) to another (the drawee) to pay a party identified on the order (payee) or the bearer a specified sum, either on demand (sight draft) or on a specified date (time draft). See also <i>Cheque, Bank draft, Bill of exchange</i> .
<b>DvP schemes as defined by the G10:</b>	three schemes can be distinguished: in Model 1, transfer instructions for both securities and funds are settled on a trade-by-trade basis, with final transfer of the securities from the seller to the buyer (delivery) occurring at the same time as final transfer of the funds from the buyer to the seller (payment); in Model 2, securities transfer instructions are settled on a gross basis with final transfer of securities from the seller to the buyer (delivery) occurring throughout the processing cycle, but funds transfer instructions being settled on a net basis, with final transfer of funds from the buyer to the seller (payment) occurring at the end of the processing cycle; and, in Model 3, transfer instructions for both securities and funds are settled on a net basis, with final transfers of both securities and funds occurring at the end of the processing cycle.
<b>EEA (European Economic Area) countries:</b>	the EU Member States plus Iceland, Liechtenstein and Norway.
<b>EFTPOS:</b>	see <i>Point of sale (POS)</i> .
<b>Electronic data interchange (EDI):</b>	the electronic exchange between commercial entities (in some cases also public administrations), in a standard format, of data relating to a number of message categories, such as orders, invoices, customs documents, remittance advices and payments. EDI messages are sent through public data transmission networks or banking system channels. Any movement of funds initiated by EDI is reflected in payment instructions flowing through the banking system. EDIFACT, a United Nations body, has established standards for electronic data interchange.
<b>Electronic money (e-money):</b>	an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transaction, but acting as a prepaid bearer instrument (see also <i>Multi-purpose prepaid card</i> ).
<b>Electronic purse:</b>	a reloadable multi-purpose prepaid card which may be used for small retail or other payments instead of banknotes and coins. See also <i>Multi-purpose prepaid card</i> .
<b>Electronic wallet:</b>	a computer device used in some electronic money systems which can contain an IC card, or into which IC cards can be inserted, and which may perform more functions than an IC card. See also <i>IC (integrated circuit) card</i> .
<b>Encryption:</b>	the use of cryptographic algorithms to encode clear text data (plaintext) into ciphertext in order to prevent unauthorised observation.
<b>Exchange-for-value settlement system:</b>	a system which involves the exchange of assets, such as money, foreign exchange, securities or other financial instruments, in order to discharge settlement obligations. These systems may use one or more funds transfer systems in order to satisfy the payment obligations which are generated. The links between the exchange of assets and the payment system(s) may be manual or electronic. See also <i>Delivery-versus-payment system (or delivery against payment; DvP)</i> .
<b>Face-to-face payment:</b>	a payment carried out by the exchange of instruments between the payer and the payee in the same physical location.
<b>Failed transaction:</b>	a securities transaction which does not settle on the contractual settlement date.
<b>Final (finality):</b>	irrevocable and unconditional.

Term	Definition
<b>Final settlement:</b>	settlement which is irrevocable and unconditional.
<b>Final transfer:</b>	an irrevocable and unconditional transfer which effects a discharge of the obligation to make the transfer. The terms “delivery” and “payment” are each defined as a final transfer. See also <i>Provisional transfer</i> .
<b>Financial application (FIN):</b>	the SWIFT II application within which all SWIFT II user-to-user messages are input and output. Certain user-to-SWIFT and SWIFT-to-user messages may also be sent and received within FIN.
<b>Financial risk:</b>	term covering a range of risks incurred in financial transactions – both liquidity and credit risks. See also <i>Liquidity risk</i> , <i>Credit risk/exposure</i> .
<b>Firewall:</b>	a hardware and/or software-based system that is used as an interface between the internet and a computer system to monitor and filter incoming and outgoing communications.
<b>Foreign exchange settlement risk:</b>	the risk that one party to a foreign exchange transaction will pay the currency it has sold but not receive the currency it has bought. This is also called “cross-currency settlement risk” or “principal risk”. It is also referred to as “Herstatt risk”, although this is an inappropriate term given the differing circumstances in which that risk materialised.
<b>Free-of-payment (FOP) delivery:</b>	delivery of securities with no corresponding payment of funds.
<b>Funds transfer system (FTS):</b>	a formal arrangement, based on private contract or statute law, with multiple membership, common rules and standardised arrangements, for the transmission and settlement of money obligations arising between the members. See also <i>Interbank funds transfer system (IFTS)</i> .
<b>Fungibility:</b>	a concept that characterises the method of holding securities by a CSD or other financial intermediary in which each of a number of issues of physical or dematerialised securities is held in a separate fungible pool. No owner has the right to any particular physical or dematerialised security in a particular pool; an owner does, however have a right to such an amount of physical or dematerialised securities as is shown in its account with a CSD or other financial intermediary.
<b>Giro system:</b>	see <i>Credit transfer system</i> .
<b>Global custodian:</b>	a custodian which provides its customers with custody services in respect of securities traded and settled not only in the country in which the custodian is located, but also in numerous other countries throughout the world.
<b>Gridlock:</b>	a situation which can arise in a funds or securities transfer system in which the failure of some transfer instructions to be executed (because the necessary funds or securities balances are unavailable) prevents a substantial number of other instructions from other participants from being executed. See also <i>Failed transaction</i> , <i>Queuing</i> , <i>Systemic risk</i> .
<b>Gross settlement system:</b>	a transfer system in which the settlement of funds or securities transfer instructions occurs individually (on an instruction-by-instruction basis).
<b>Haircut:</b>	the difference between the market value of a security and its collateral value. Haircuts are taken by a lender of funds in order to protect the lender, should the need arise to liquidate the collateral, from losses owing to declines in the market value of the security. See also <i>Margin</i> .
<b>Herstatt risk:</b>	see <i>Principal risk</i> .
<b>Home banking:</b>	banking services which a retail customer of a financial institution can access using a telephone, television set, terminal or personal computer as a telecommunication link to the institution’s computer centre.

Term	Definition
<b>Hybrid system:</b>	a payment system which combines characteristics of RTGS systems and netting systems.
<b>IC (integrated circuit) card:</b>	a plastic card in which one or more integrated circuits are embedded. Also called a “chip card”.
<b>Immobilisation:</b>	placement of certificated securities and financial instruments in a central securities depository to facilitate book-entry transfers.
<b>Indirect participant:</b>	refers to a type of participant in a funds or securities transfer system in which there is a tiering arrangement. Indirect participants are distinguished from direct participants by their inability to perform some of the system activities (e.g. inputting of transfer orders or settlement) performed by direct participants. Indirect participants thus require the services of direct participants to perform those activities on their behalf. In an EU context, the term refers more specifically to participants in a transfer system which are responsible only to their direct participants for settling the payments input in the system. See also <i>Direct participant in an IFTS, Settling participant, Tiering arrangement</i> .
<b>Initial margin:</b>	a risk control measure applied in reverse transactions implying that the collateral required for a transaction is equal to the credit extended to the counterparty plus the value of the initial margin. More generally, cash or collateral which is deposited with the clearing house in order to ensure performance on obligations. (Also known as a “performance bond” or “original margin”.)
<b>Integrity:</b>	the quality of being protected against accidental or fraudulent alteration, or the quality of indicating whether or not alteration has occurred.
<b>Interbank funds transfer system (IFTS):</b>	a funds transfer system in which most (or all) direct participants are financial institutions, particularly banks and other credit institutions.
<b>Interchange fee:</b>	a transaction fee set by the network organisation and paid by the card-issuing institution to the acquiring institution for the cost of deploying and maintaining ATMs and EFTPOS terminals.
<b>Interlinking:</b>	within the TARGET system, Interlinking provides common procedures and an infrastructure which allow payment orders to move from one domestic RTGS system to another.
<b>International central securities depository (ICSD):</b>	a securities settlement system which clears and settles international securities or cross-border transactions in domestic securities. At present, there are two ICSDs located in EU countries: Clearstream Luxembourg and Euroclear Bank.
<b>Interoperability:</b>	a situation in which payment instruments belonging to a given scheme may be used in other countries and in systems installed by other schemes. Interoperability requires technical compatibility between systems, but can only take effect where commercial agreements have been concluded between the schemes concerned.
<b>Intraday credit:</b>	see <i>Daylight credit (or daylight overdraft, daylight exposure, intraday credit)</i> .
<b>Intraday liquidity:</b>	funds which can be accessed during the business day, usually to enable financial institutions to make payments in real time. See also <i>Intraday credit</i> .
<b>Irrevocable and unconditional transfer:</b>	a transfer which cannot be revoked by the transferor and is unconditional (and therefore final).

Term	Definition
<b>Issuer:</b>	the entity which is obligated by a security or other financial instrument. For example, a corporation or government with authority to issue and sell securities; or a bank which issues a letter of credit. The term is sometimes used to refer to a financial institution which issues credit or debit cards. In a stored value or similar prepaid electronic money system, the issuer is the entity which receives payment in exchange for value distributed in the system and which is obligated to pay or redeem transactions or balances presented to it.
<b>Key:</b>	a unique series of digits used in combination with a cryptographic algorithm.
<b>Large-value funds transfer system:</b>	a funds transfer system through which large-value and high-priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Although, as a rule, no minimum value is set for the payments they carry, the average size of payments passed through such systems is usually relatively large. Large-value funds transfer systems are sometimes known as “wholesale funds transfer systems”.
<b>Large-value payments:</b>	payments, generally of very large amounts, which are mainly exchanged between banks or between participants in the financial markets and usually require urgent and timely settlement.
<b>Legal risk:</b>	the risk of loss because of the unexpected application of a law or regulation or because a contract cannot be enforced.
<b>Letter of credit (L/C):</b>	a promise by a bank or other issuer to a third party to make payment on behalf of a customer in accordance with specified conditions. Frequently used in international trade to make funds available in a foreign location.
<b>Limit:</b>	see <i>Credit limit</i> .
<b>Limited-purpose prepaid card:</b>	a prepaid card which can be used for a limited number of well-defined purposes. Its use is often restricted to a number of well-identified points of sale within a well-identified location (e.g. a building, corporation or university). In the case of single-purpose prepaid cards, the card issuer and the service provider may be identical (e.g. cards used in public telephones). See also <i>Prepaid card</i> .
<b>Link between securities settlement systems:</b>	a link consists of all the procedures and arrangements which exist between two SSSs for the transfer of securities between the two SSSs concerned through a book-entry process.
<b>Liquidity risk:</b>	the risk that a counterparty (or participant in a settlement system) will not settle an obligation for full value when due. Liquidity risk does not imply that a counterparty or participant is insolvent, since it may be able to settle the required debit obligations at some unspecified time thereafter.
<b>Long position:</b>	a situation in which the buyer or holder of securities owns more securities than it contracts to deliver.
<b>Loss-sharing agreement:</b>	an agreement among participants in a clearing or settlement system regarding the allocation of any losses arising from the default of a participant in the system or of the system itself.
<b>Loss-sharing pools:</b>	cash, securities or possibly other assets that are provided by the participants in advance and are held by the system to ensure that commitments arising from loss-sharing agreements can be met.
<b>MAC:</b>	Message Authentication Code: a hash algorithm parameterised with a key to generate a number which is attached to the message and used to authenticate it and guarantee the integrity of the data transmitted.



Term	Definition
<b>Margin:</b>	a term generally referring to the collateral used to secure an obligation, either realised or potential. In securities markets, it is the collateral deposited by a customer in order to secure a loan from a broker for the purchase of shares. In organisations with a central counterparty, the collateral deposited in order to guarantee performance of an obligation or to cover potential market movements on unsettled transactions is also sometimes referred to as a margin.
<b>Marginal lending facility:</b>	a standing facility of the Eurosystem which counterparties may use to receive overnight credit from an NCB against a pre-specified interest rate.
<b>Market risk:</b>	the risk of losses in on and off-balance sheet positions arising from movements in market prices.
<b>Marking to market:</b>	the practice of revaluing securities and financial instruments using current market prices. In some cases, unsettled contracts to purchase or sell securities are marked to market and the party with an as yet unrealised loss on the contract is required to transfer funds or securities equal to the value of the loss to the other party.
<b>Matching:</b>	the process used for comparing the trade or settlement details provided by parties in order to ensure that they agree on the terms of the transaction. Also called “comparison checking”.
<b>Money order:</b>	an instrument used to remit money to a named payee, often used by persons who do not have a current account with a financial institution, to pay bills or to transfer money to another person or to a company. There are three parties to a money order: the remitter (payer), the payee and the drawee. Drawees are usually financial institutions or post offices. Payees can either cash their money orders or present them to their bank for collection.
<b>Multifunction cards:</b>	a card which, in addition to a stored value card function, may include other payment facilities such as a debit or credit card function and/or non-payment facilities.
<b>Multilateral credit limit:</b>	see <i>Credit limit</i> .
<b>Multilateral net settlement position:</b>	the sum of the value of all the transfers a participant in a net settlement system has received during a certain period of time less the value of the transfers made by the participant to all other participants. If the sum is positive, the participant is in a multilateral net credit position; if the sum is negative, the participant is in a multilateral net debit position.
<b>Multilateral net settlement system:</b>	a settlement system in which each settling participant settles (typically by means of a single payment or receipt) the multilateral net settlement position which results from the transfers made and received by it, for its own account and on behalf of its customers or non-settling participants for which it is acting. See also <i>Multilateral netting</i> , <i>Multilateral net settlement position</i> , <i>Direct participant in an IFTS</i> .
<b>Multilateral netting:</b>	an arrangement among three or more parties to net their obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. The multilateral netting of payment obligations normally takes place in the context of a multilateral net settlement system. Such netting is conducted through a central counterparty. The multilateral net position is also the bilateral net position between each participant and the central counterparty. See also <i>Bilateral netting</i> , <i>Multilateral net settlement position</i> , <i>Multilateral net settlement system</i> .



Term	Definition
<b>Multi-purpose prepaid card:</b>	a prepaid card which can be used at the outlets of several service providers for a wide range of purposes and which has the potential to be used on a national or international level, but which may sometimes be limited to a certain area. A reloadable multi-purpose prepaid card is also known as an “electronic purse”. See also <i>Electronic money (e-money)</i> .
<b>Multi-purpose prepaid card scheme:</b>	a scheme in which at least three parties are involved: the issuer, the cardholder and the acceptor of the card. (Where one acceptor currently exists, it must be possible for other legally distinct acceptors to join the scheme.)
<b>Net credit (or net debit) position</b>	a participant’s net credit or net debit position in a netting system is the sum of the value of all the transfers it has received up to a particular point in time less the value of all transfers it has sent. If the difference is positive, the participant is in a net credit position; if the difference is negative, the participant is in a net debit position. The net credit or net debit position at settlement time is called the net settlement position. These net positions may be calculated on a bilateral or multilateral basis.
<b>Net debit cap:</b>	see <i>Caps, Net credit (or net debit) position</i> .
<b>Net settlement:</b>	the settlement of a number of obligations or transfers between or among parties on a net basis. See also <i>Netting</i> .
<b>Net settlement system:</b>	a funds transfer or securities settlement system whose settlement operations are completed on a bilateral or multilateral net basis.
<b>Netting:</b>	an agreed offsetting of positions or obligations by trading partners or participants. The netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions. Netting may take several forms, which have varying degrees of legal enforceability in the event of the default of one of the parties. See also <i>Bilateral netting, Multilateral netting, Position netting, Novation, Substitution (of party)</i> .
<b>Netting by novation:</b>	netting by novation agreements provide for individual forward-value contractual commitments (e.g. foreign exchange contracts) to be discharged at the time of their confirmation and replaced by new obligations forming part of a single agreement. Amounts due under a discharged contract will be added to running balances due between the parties in each currency at each future value date.
<b>Nominee:</b>	a person or entity named by another to act on its behalf. A nominee is commonly used in a securities transaction to obtain registration and legal ownership of a security.
<b>Non-repudiability:</b>	the ability to prevent denial or repudiation by the sender or receiver of a payment message.
<b>Novation:</b>	satisfaction and discharge of existing contractual obligations by means of their replacement by new obligations (whose effect, for example, is to replace gross with net payment obligations). The parties to the new obligations may be the same as to the existing obligations or, in the context of some clearing house arrangements, there may additionally be substitution of parties. See also <i>Substitution (of party)</i> .
<b>Offsetting:</b>	see <i>Netting</i> .
<b>Open network:</b>	telecommunications network to which access is not restricted.
<b>Operating system:</b>	that part of the software of a computer system (or chip) which is closely connected to the hardware on which it runs and performs basic input/output operations, computations, memory management, etc.

Term	Definition
<b>Operational risk:</b>	the risk of human error or a breakdown of some component of the hardware, software or communications systems which is crucial to settlement.
<b>Operational safe custody accounts:</b>	securities accounts run by the central bank in which credit institutions can place securities which are eligible as collateral for central bank operations. The securities held on these accounts are ultimately deposited with the CSD under the name of the NCB, so that the transfer to a safe custody account results in a transfer between the bank's and the NCB's account with the CSD. The securities deposited with the NCB are generally pledged to the NCB as collateral for (interest-bearing) overnight and (interest-free) intraday credit. They can also be used for open market transactions (repos) based on general authorisation given to the NCB to acquire securities.
<b>Optimisation routine:</b>	routine processes in a payment system to determine the order in which payments are accepted for settlement. Optimisation routines are used to improve system liquidity and increase settlement efficiency. See also <i>Queuing, Scheduling</i> .
<b>Overnight money (day-to-day money):</b>	a loan with a maturity of one business day.
<b>Oversight of payment systems:</b>	a central bank task, principally intended to promote the smooth functioning of payment systems. The objectives of oversight are: to protect the financial system from possible "domino effects", which may occur when one or more participants in the payment system incur credit or liquidity problems; and to foster the efficiency and soundness of payment systems. Payment systems oversight is aimed at a given system (e.g. a funds transfer system) rather than at individual participants. It also covers payment instruments.
<b>Oversight of securities settlement systems:</b>	a task principally intended to promote the smooth functioning of securities settlement systems and to protect the financial system from possible "domino effects", which may occur when one or more participants in the securities settlement system incur credit or liquidity problems. The oversight of securities settlement systems is aimed at a given system (e.g. a securities transfer system) rather than at individual participants. It is performed by the competent financial authority/authorities and/or the central bank in accordance with the local legal framework.
<b>Participant in an IFTS:</b>	a party which participates in a transfer system. This generic term refers to an institution which is identified by a transfer system (e.g. by a bank identification number) and is allowed to send payment orders directly to the system or which is directly bound by the rules governing the transfer system. See also <i>Direct participant in an IFTS, Indirect participant</i> .
<b>Payment:</b>	the payer's transfer of a monetary claim on a party acceptable to the payee. Typically, claims take the form of banknotes or deposit balances held at a financial institution or at a central bank.
<b>Payment instrument:</b>	any instrument enabling the holder/user to transfer funds.

Term	Definition
<b>Payment lag:</b>	the time-lag between the initiation of the payment order and its final settlement.
<b>Payment message/instruction/order:</b>	an order or message to transfer funds (in the form of a monetary claim on a party) to the account of a beneficiary. The order may relate either to a credit transfer or to a debit transfer. See also <i>Credit transfer</i> , <i>Debit transfer system</i> , <i>Payment</i> .
<b>Payment netting:</b>	settling payments due on the same date and in the same currency on a net basis.
<b>Payment system:</b>	a set of instruments, banking procedures and, typically, interbank funds transfer systems which facilitate the circulation of money.
<b>Payment versus payment (PvP):</b>	a mechanism in a foreign exchange settlement system which ensures that a final transfer of one currency occurs if, and only if, a final transfer of the other currency or currencies takes place.
<b>Personal identification number (PIN):</b>	a numerical code which the cardholder may need to quote for verification of identity. In electronic transactions, this is seen as the equivalent of a signature.
<b>Pledge:</b>	property delivered to secure the performance of an obligation owed by one party (the debtor/pledgor) to another (the secured party). A pledge creates a security interest (lien) in the property so delivered.
<b>Point of sale (POS):</b>	this term refers to the use of payment cards at a retail location (point of sale). The payment information is captured either on paper vouchers or by electronic terminals, which, in some cases, are designed to also transmit the information. Where this is the case, the arrangement may be referred to as an “electronic funds transfer at point of sale” (EFTPOS).
<b>Pooling system:</b>	see <i>Collateral pool</i> , <i>Collateral pooling system</i> .
<b>Position netting:</b>	netting of instructions in respect of obligations between two or more parties which neither satisfies nor discharges those original individual obligations. Also referred to as “payment netting”, in the case of payment instructions, or “advisory netting”.
<b>Prefunding:</b>	the requirement that funds be available in accounts at the settlement institution before institutions use these accounts to meet their settlement obligations.
<b>Prepaid card:</b>	a card on which value is stored, and for which the holder has paid the issuer in advance. See also <i>Limited-purpose prepaid card</i> , <i>Multi-purpose prepaid card</i> , <i>Stored value card</i> , <i>Electronic purse</i> .
<b>Prepaid card holder:</b>	the customer identified on a prepaid card or, in the case of anonymous card products not related to any account, the customer owning the card.
<b>Principal risk:</b>	the risk that a party will lose the full value involved in a transaction (credit risk). In the settlement process, this term is typically associated with exchange-for-value transactions when there is a lag between the final settlement of the various legs of a transaction (i.e. the absence of delivery versus payment). The principal risk which arises from the settlement of foreign exchange transactions (foreign exchange settlement risk) is sometimes called “cross-currency settlement risk” or “Herstatt risk”. See also <i>Credit risk/exposure</i> .
<b>Provider:</b>	an operator which establishes the hardware and software conditions for the conduct of transactions with electronic money, without necessarily being the issuer of the electronic money units.

Term	Definition
<b>Provisional transfer:</b>	a conditional transfer in which one or more parties retain the right by law or agreement to rescind the transfer.
<b>Public key cryptography:</b>	see <i>Asymmetric cryptography</i> .
<b>Queuing:</b>	an arrangement whereby transfer orders are held pending by the originator/deliverer or by the system until sufficient cover is available in the originator's/deliverer's clearing account or under the limits set against the payer; in some cases, cover may include unused credit lines or available collateral. See also <i>Caps</i> .
<b>Real time:</b>	the processing of instructions at the time they are received rather than at some later time.
<b>Real-time gross settlement (RTGS):</b>	the continuous (real-time) settlement of funds or securities transfers individually on an order-by-order basis (without netting).
<b>Real-time gross settlement (RTGS) system:</b>	a settlement system in which processing and settlement take place on an order-by-order basis (without netting) in real time (continuously).
<b>Real-time risk management:</b>	a process which allows the risk associated with payments between payment system participants to be managed immediately and continuously.
<b>Real-time transmission, processing or settlement:</b>	the transmission, processing or settlement of a funds or securities transfer instruction at the time it is initiated.
<b>Receiver finality:</b>	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the receiving participant in a transfer system to make final funds available to its beneficiary customer on the value date. See also <i>Final settlement</i> .
<b>Registration:</b>	the listing of ownership of securities in the records of the issuer or its transfer agent/registrar.
<b>Remote access to an SSS:</b>	a facility whereby an SSS in one country ("home country") is able to become a direct participant in an SSS established in another country ("host country") and, for that purpose, to have a securities account in its own name with the SSS in the host country. See also <i>Securities settlement system (SSS)</i> .
<b>Remote access to an IFTS:</b>	a facility whereby a credit institution established in one country ("home country") is able to become a direct participant in an interbank funds transfer system (IFTS) established in another country ("host country") and, for that purpose, to have a settlement account in its own name with the central bank in the host country, if necessary, without having established a branch in the host country.
<b>Remote participant:</b>	a participant in a system which has neither its head office nor any of its branches located in the country where the system is based.
<b>Remote payment:</b>	payment carried out through the sending of payment orders or payment instruments (e.g. by post). Contrast with <i>Face-to-face payment</i> .
<b>Replacement cost risk:</b>	the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. This failure may leave the solvent party with an unhedged or open market position or deny the solvent party unrealised gains on the position. The resulting exposure is the cost of replacing, at current market prices, the original transaction. Also called "market risk" or "price risk". See also <i>Credit risk/exposure</i> .

Term	Definition
<b>Repo:</b>	see <i>Repurchase agreement</i> .
<b>Repudiation:</b>	the denial by one of the parties to a transaction of participation in all or part of that transaction or of the content of a communication.
<b>Repurchase agreement:</b>	an arrangement whereby an asset is sold while the seller simultaneously obtains the right and obligation to repurchase it at a specific price on a future date or on demand. Such an arrangement is similar to collateralised borrowing, with the exception that ownership of the securities is not retained by the seller.
<b>Reserve requirement:</b>	the requirement for institutions to hold minimum reserves with the central bank. In the minimum reserve framework of the Eurosystem, the reserve requirement of a credit institution is calculated by multiplying the reserve ratio for each category of items in the reserve base by the amount of those items in the institution's balance sheet.
<b>Respondent:</b>	see <i>Correspondent banking</i> .
<b>Retail funds transfer system:</b>	a funds transfer system which handles a large volume of payments of relatively low value in such forms as cheques, credit transfers, direct debits, and ATM and EFTPOS transactions.
<b>Retail payments:</b>	this term describes all payments which are not included in the definition of large-value payments. Retail payments are mainly consumer payments of relatively low value and urgency.
<b>Retail transactions:</b>	transactions of small amounts, mainly initiated by individuals. See also <i>Retail payments</i> .
<b>Retailer card:</b>	a card issued by non-banking institutions, to be used in specified stores. The holder of the card has usually been granted a line of credit.
<b>Reverse repo:</b>	a contract with a counterparty to buy and subsequently resell securities at a specified date and price; the mirror image of a repo.
<b>Reverse transaction:</b>	an operation whereby an NCB buys or sells assets under a repurchase agreement or conducts credit operations against collateral.
<b>Same-day funds:</b>	money balances which the recipient has a right to transfer or withdraw from an account on the day of receipt.
<b>Scheduling:</b>	Technique for managing payment queues by determining the order in which payments are accepted for settlement. See also <i>Queuing</i> , <i>Optimisation routine</i> .
<b>Securities settlement system (SSS):</b>	a system which permits the holding and transfer of securities, either free of payment (FOP; for example in the case of a pledge) or against payment (DvP). It comprises all the institutional arrangements required for the clearing and settlement of securities trades and the safekeeping of securities. Settlement of securities occurs on securities deposit accounts held with the CSD, ICSD or institution in charge of operating the system. The final custodian is normally a CSD.
<b>Seigniorage:</b>	in a historical context the term "seigniorage" was used to refer to the share, fee or tax which the seignior, or sovereign, took to cover the expenses of coinage and for profit. With the introduction of paper money, larger profits could be made because banknotes cost much less to produce than their face value. When central banks became monopoly suppliers of banknotes, seigniorage came to be reflected in the profits made by them and ultimately their major or only shareholder, the government. Seigniorage can be estimated by multiplying outstanding banknotes and coins (non-interest-bearing central bank liabilities) by the long-term rate of interest on government securities (a proxy for the return on central bank assets).

Term	Definition
<b>Sender finality:</b>	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the initiating participant in a funds transfer system to make final payment to the receiving participant on the value date. See also <i>Final settlement</i> .
<b>Settlement:</b>	an act which discharges obligations in respect of funds or securities transfers between two or more parties. A settlement may be final or provisional. See also <i>Gross settlement system, Net settlement system, Net settlement, Final settlement</i> .
<b>Settlement agent:</b>	an institution which manages the settlement process (e.g. the determination of settlement positions, monitoring the exchange of payments, etc.) for transfer systems or other arrangements which require settlement. See also <i>Final settlement, Settlement, Settlement institution, Multilateral net settlement system</i> .
<b>Settlement asset:</b>	an asset used for the discharge of settlement obligations as specified by the rules, regulations or customary practice of a payment system. see <i>Final settlement</i> .
<b>Settlement finality:</b>	
<b>Settlement institution:</b>	the institution through which books transfers between participants take place in order to achieve settlement within a settlement system. See also <i>Settlement agent, Multilateral net settlement system, Bilateral net settlement system</i> .
<b>Settlement lag:</b>	in an exchange-for-value process, the time-lag between entering into a trade/bargain and its discharge by the final exchange of a financial asset for payment. See also <i>Payment lag</i> .
<b>Settlement obligation:</b>	an amount due from one financial institution to other financial institutions as a result of the clearing of payments. See also <i>Net credit (or net debit) position</i> .
<b>Settlement risk:</b>	general term used to designate the risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risks.
<b>Settlement system:</b>	a system used to facilitate the settlement of transfers of funds or financial instruments.
<b>Settling participant:</b>	a participant which maintains one or more accounts with a settlement agent in order to settle funds or securities transfers on its own behalf or, potentially, for other market participants. See also <i>Tiering arrangement, Settlement agent, Settlement institution</i> .
<b>Share book-entry system:</b>	a computerised system for the issue and registration of equity securities in book-entry form. See also <i>Book-entry system, Debt book-entry system</i> .
<b>Single-purpose prepaid card:</b>	a stored value card for which the card issuer and merchant (card acceptor) are identical, thus representing prepayment for specific goods and services delivered by the issuer. See also <i>Prepaid card</i> .
<b>Smart card:</b>	an integrated circuit card with a microprocessor capable of performing calculations.
<b>Software-based electronic money products:</b>	electronic money products which employ specialised software on a personal computer and which can typically be used to transfer value in electronic form via telecommunications networks such as the internet.
<b>Standing facility:</b>	a central bank facility available to counterparties on their own initiative. The Eurosystem offers two overnight standing facilities, the marginal lending facility and the deposit facility.
<b>Standing order:</b>	an instruction from a customer to its bank to make a regular payment of a fixed amount to a named recipient.



Term	Definition
<b>Stored value card:</b>	a prepaid card in which the record of funds can be increased as well as decreased. Also called an “electronic purse”.
<b>Straight-through processing:</b>	the automated end-to-end processing of trades/payment transfers, including the automated completion of confirmation, generation, clearing and settlement of instructions.
<b>Substitution (of party):</b>	the substitution of one party for another in respect of an obligation. In a netting and settlement context the term typically refers to the process of amending a contract between two parties so that a third party is interposed as a counterparty to each of the two parties and the original contract between the two parties is satisfied and discharged. See also <i>Novation</i> .
<b>Substitution (of securities):</b>	recalling the securities lent to a borrower and replacing them with other securities of equivalent market value during the life of the lending.
<b>Supervision of financial institutions:</b>	the assessment and enforcement of compliance by financial institutions with laws, regulations or other rules intended to ensure that they operate in a safe and sound manner and that they hold capital and reserves sufficient to support the risks which arise in connection with the conduct of their business.
<b>Surcharge fee:</b>	a transaction fee set by an ATM owner and paid directly by the cardholder to the ATM owner for the cost of deploying and maintaining the ATM.
<b>Survivors pay:</b>	a loss-sharing arrangement which, in the event of a participant’s inability to settle, requires losses to be borne by the surviving participants in accordance with a predetermined formula.
<b>Swap:</b>	an agreement on the exchange of payments between two parties at some point(s) in the future in accordance with a specified formula.
<b>SWIFT:</b>	the Society for Worldwide Interbank Financial Telecommunication: a cooperative organisation created and owned by banks which operates a network to facilitate the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A SWIFT payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place via a payment system or through correspondent banking relationships.
<b>Switch fee:</b>	a transaction fee set by the network organisation and paid by the card-issuing institution to the organisation for the cost of routing transaction information.
<b>Symmetric cryptography:</b>	a set of cryptographic techniques in which devices share the same secret key in combination with algorithms. For encryption, the same key is used for encrypting and decrypting, and the decrypting algorithm is the reverse function of the encrypting algorithm.
<b>Systemic disruption:</b>	an event or events whose impact has the potential to threaten the stability of the financial system through transmission from one financial institution to another, including through the payment system. See also <i>Systemic risk</i> .
<b>Systemic risk:</b>	the risk that the failure of one participant in a transfer system, or in financial markets generally, to meet its required obligations will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets.

Term	Definition
<b>Systemically important payment system:</b>	a payment system is systemically important where, if the system were insufficiently protected against risk, disruption within it could trigger or transmit further disruptions amongst participants or systemic disruptions in the financial area more widely.
<b>TCP/IP:</b>	Transmission Control Protocol/Internet Protocol: a set of commonly used communication and address protocols; TCP/IP is de facto the communication standard for the internet.
<b>Teller's cheque:</b>	see <i>Bank draft</i> .
<b>Tiering arrangement:</b>	an arrangement which may exist in a funds or securities transfer system whereby participants in one category require the services of participants in another category to exchange and/or settle their transactions. See also <i>Direct participant in an IFTS</i> , <i>Indirect participant</i> .
<b>Time-stamp:</b>	a value inserted in a message to indicate the time at which the message was created.
<b>Trade date:</b>	the date on which a trade/bargain is executed.
<b>Trade netting:</b>	legally enforceable consolidation and offsetting of individual trades into net amounts of securities and money due between trading partners or among members of a clearing system. Netting of trades which is not legally enforceable is called "position netting".
<b>Trade-for-trade (gross) settlement:</b>	the settlement of individual transactions between parties. See also <i>Gross settlement system</i> .
<b>Transfer:</b>	operationally, the sending (or movement) of funds or securities or of rights relating to funds or securities from one party to another party by (i) conveyance of physical instruments/money; (ii) accounting entries on the books of a financial intermediary; or (iii) accounting entries processed through a funds and/or securities transfer system. The act of transfer affects the legal rights of the transferor, the transferee and possibly third parties with regard to the money, security or other financial instrument being transferred.
<b>Transfer system:</b>	a generic term covering interbank funds transfer systems and exchange-for-value systems.
<b>Transferability:</b>	in electronic money systems, the degree to which an electronic balance can be transferred between devices without interaction with a central entity.
<b>Travel and entertainment card:</b>	a card issued by non-banks indicating that the holder has been granted a line of credit. It enables the holder to make purchases, but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee. Also called a "charge card".
<b>Truncation:</b>	a procedure in which the physical movement of paper payment instruments (e.g. paid cheques or credit transfers) within a bank, between banks or between a bank and its customer is curtailed or eliminated, being replaced, in whole or in part, by electronic records of their content for further processing and transmission.
<b>Ultimate settlement:</b>	a term sometimes used to denote final settlement in central bank money.

Term	Definition
<b>Unwinding (or settlement unwind):</b>	a procedure followed in certain clearing and settlement systems in which transfers of securities or funds are settled on a net basis, at the end of the processing cycle, with all transfers being provisional until all participants have discharged their settlement obligations. If a participant fails to settle, some or all of the provisional transfers involving that participant are deleted from the system and the settlement obligations from the remaining transfers are then recalculated. Such a procedure has the effect of transferring liquidity pressures and possible losses arising from the failure to settle to other participants, and may, in an extreme case, result in significant and unpredictable systemic risks. Also called “settlement unwind”.
<b>User:</b>	payment system users comprise both participants and their payment service customers. See also <i>Direct participant in an IFTS</i> , <i>Indirect participant</i> , <i>Participant in an IFTS</i> .
<b>User fee:</b>	a transaction fee set by the card issuer and paid by the cardholder to the issuing institution for card payments or ATM cash withdrawals; other user fees, sometimes called foreign fees, are paid by the cardholder to the issuing institution for the use of ATMs not owned by the issuing institution.
<b>Variation margin (or marked-to-market payments):</b>	delivery or receipt of collateral (securities and/or cash) adjusting the initial margin which covers a market participant’s position. This adjustment is often carried out on a daily basis and allows any additional potential losses (or gains) on the market participant’s position which are implied by current market conditions to be offset.
<b>White list:</b>	in a card-based system, a database containing a list of all authorised card numbers.
<b>Wholesale funds transfer system:</b>	see <i>Large-value funds transfer system</i> .
<b>Zero-hour rule:</b>	a provision in the insolvency laws of some countries whereby any transaction on the part of a closed institution which takes place after midnight on the date on which that institution was ordered to close may be retroactively rendered ineffective.





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