



EUROPEAN CENTRAL BANK

EUROSYSTEM

# THE MONETARY POLICY OF THE ECB

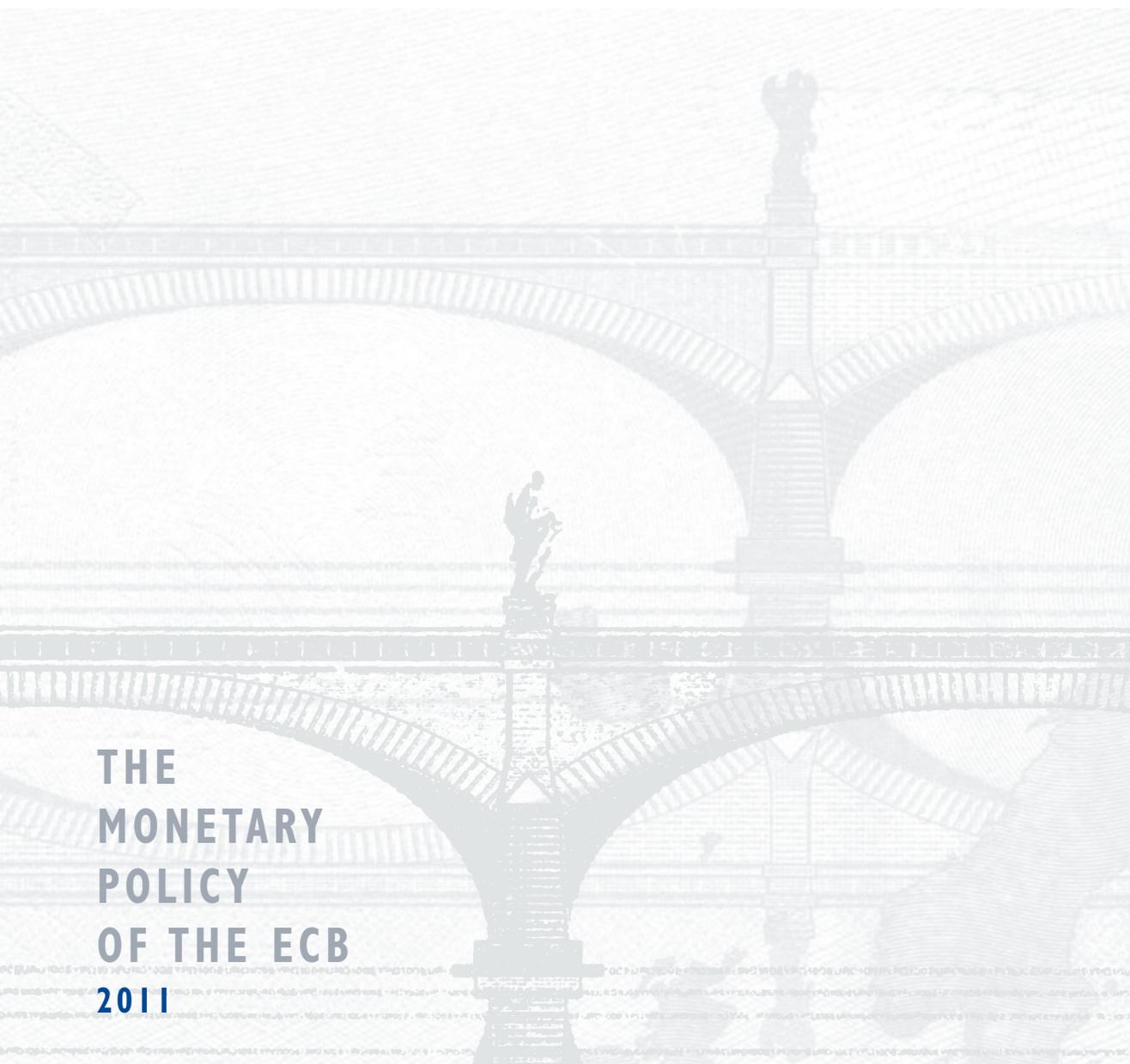
2011





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EUROSYSTEM



**THE  
MONETARY  
POLICY  
OF THE ECB  
2011**

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## FOREWORD

On 1 January 1999 a new currency – the euro – was created. Today the euro is the official currency of 17 European countries with more than 330 million citizens, and an anchor of stability for Europe.

The Treaty assigns the Eurosystem the primary objective of maintaining price stability, reflecting a broad consensus in society that maintaining stable prices is the best contribution that monetary policy can make to economic growth, job creation and social cohesion. From the outset, the Governing Council of the ECB has set itself a very clear numerical benchmark, against which our fellow citizens can assess the performance of their single monetary policy. The Governing Council aims to maintain inflation below, but close to, 2% over the medium term.

From the start, the Eurosystem has succeeded in maintaining price stability in the euro area over the medium term. In the first 12 years of the euro, the average annual inflation rate in the euro area has been below, but close to, 2% and inflation expectations have remained fully anchored in line with price stability. The credibility of the euro, as measured by its ability to preserve the purchasing power of euro area households, has been better than that of its legacy currencies over the previous 50 years.

The conditions for achieving price stability have not been easy and the single monetary policy has faced a number of significant challenges. Several adverse shocks have hit the euro area economy. The ECB has been confronted with periods of strong

global commodity price movements, which are not under the control of monetary policy. It has had to deal with bouts of uncertainty in the world economy, including the geopolitical tensions that prevailed in the aftermath of the terrorist attacks of 11 September 2001 and the most serious financial crisis since the Great Depression.

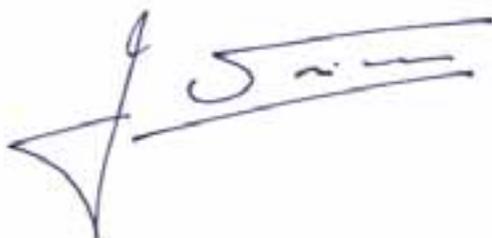
The recent crisis has revealed the need for a quantum leap forward towards reinforcing the institutional framework of Economic and Monetary Union (EMU). While the monetary aspects of EMU have proven robust, some weaknesses in its economic functions have become obvious. There is a need to reinforce economic governance in the euro area, including the fiscal regime enshrined in the Stability and Growth Pact and the national economic policy frameworks. We also have to build and implement a rigorous and credible surveillance framework.

This book provides a comprehensive overview of the ECB's monetary policy. The third edition of the book takes into account new developments since the last edition was published in 2004. The implications for the legal framework of the entry into force of the Lisbon Treaty on 1 January 2009 have been taken into account. The overview of the main economic and financial features of the euro area economy has been updated with six years of additional data. In mid-2007 the Governing Council decided to embark upon a research programme to enhance the ECB's monetary analysis, the key results of which are presented together with the ECB's two-pillar monetary policy strategy. The flexible design

and the broad range of instruments and procedures within the Eurosystem's operational framework have supported the ECB's bold response to the financial crisis, including the introduction of a number of non-standard monetary policy measures which are explained in this edition. Finally, the book provides a brief review of the conduct of monetary policy during nearly 12 years of EMU.

I am sure this third edition of "The monetary policy of the ECB" will further enhance understanding of the ECB's monetary policy.

Frankfurt am Main, May 2011

A handwritten signature in blue ink, appearing to read 'J. Trichet', with a stylized flourish on the left side.

Jean-Claude Trichet  
President of the ECB

## INTRODUCTION

On 1 January 1999 the ECB assumed responsibility for monetary policy in the euro area – the second largest economic area in the world after the United States. This represented a milestone in a long and complex process of integration among European countries. Twelve years on, the ECB enjoys a high degree of credibility worldwide for its sound monetary policy geared to maintaining price stability in the euro area.

The ECB's robust monetary policy framework builds on lessons drawn from the historical experiences of many central banks over several decades in the past, ranging from failed attempts to fine-tune the economy and the resulting stagflation that prevailed in many industrialised countries in the 1970s to the successful experiences in bringing inflation down to levels consistent with price stability in the 1980s. The institutional framework of the single monetary policy is based on two fundamental principles that are indispensable for sound monetary policy-making. First, the central bank's mandate shall focus clearly and unambiguously on maintaining price stability. Second, the central bank shall be independent. With the ratification of the Lisbon Treaty, the assignment of a clear and unambiguous mandate to the ECB to maintain price stability was confirmed, and even reinforced, by the elevation of the primary objective of the ECB – price stability – to an objective of the European Union as a whole. The ECB is granted full independence from political interference in the fulfilment of this mandate, including the prohibition of monetary financing of public authorities.

Since its inception the ECB has adopted a clear monetary policy strategy, which has been effective both in turbulent times and during quieter periods. Since 1998 the ECB has defined price stability as a year-on-year increase in the Harmonised Index of Consumer Prices for the euro area of below 2% over the medium term. The definition makes it clear that inflation above 2% is not consistent with price stability – the primary objective of the ECB. It also implies that very low inflation rates, and especially deflation, are not consistent with price stability either. In 2003, in the context of the evaluation of the monetary policy strategy, the Governing Council confirmed the quantitative definition of price stability and clarified that, in pursuing price stability, it will aim to keep the euro area inflation rate at below, but close to, 2% over the medium term.

One of the key features of the ECB's monetary policy strategy is its two-pillar framework for the analysis of the risks to price stability. The two pillars represent two complementary perspectives on the determinants of price developments. One perspective, referred to as the "economic analysis", is aimed at assessing the short to medium-term determinants of price developments, with a focus on real activity and the cost factors driving prices over those horizons. It takes account of the fact that short to medium-term price developments are influenced largely by the interplay of supply and demand in the goods, services and factor markets.

While many factors can influence price developments over shorter

horizons, it is an undisputed fact that prolonged periods of high inflation are associated with high money growth and that inflation is ultimately a monetary phenomenon. Therefore, the second perspective, referred to as the “monetary analysis”, is founded on the relationship between money growth and inflation over the medium to longer-term horizon and exploits the fact that monetary trends lead inflationary trends. The monetary analysis serves, in particular, as a means of cross-checking, from a medium to long-term perspective, the short to medium-term indications for monetary policy derived from the economic analysis.

Two important developments that occurred after the second edition of this book was published deserve special mention.

#### **The enhancement of the monetary analysis**

Experience has demonstrated that communicating the monetary analysis may at times be challenging. This can be attributed partly to the fact that for a long time, mainstream economics has neglected the analysis of monetary data and the developments in theoretical and empirical research on interpreting the interaction between money demand and money creation and its impact on the determination of prices.

As with all forms of analysis, to remain relevant for policy-making, the tools employed in the conduct of the monetary analysis need to be continuously refined and developed as new data become available and methods advance. In spring 2007 the Governing Council of the ECB, which was confronted with excessive

money growth and perceived serious challenges down the road, decided to give additional impetus to this ongoing process by initiating a research programme to enhance the ECB’s monetary analysis. New research<sup>1</sup> has deepened the understanding of the relationship between longer-term trends in monetary growth and inflation and has led to a more refined view of how it can be used to support monetary policy decisions. This has confirmed the soundness of the two-pillar monetary policy strategy since the introduction of the euro, including the prominent role given to monetary analysis as a useful guide for monetary policy decisions.

#### **The ECB’s response to the financial crisis**

The second challenge faced by the ECB since the publication of the second edition of this book was the global financial crisis that started in 2007 and fully erupted in autumn 2008. Relying on a sound monetary policy strategy in such uncertain times becomes a major asset. The clear and unambiguous objective of maintaining price stability provided a strong focus for all of the ECB’s decisions and created a focal point for coordinating private sector expectations. The ECB’s credibility ensured that price stability could be maintained. In this respect, our monetary policy strategy has proved its robustness.

Throughout the crisis, monetary policy reacted to economic and financial shocks with the appropriate medium-term orientation to ensure a solid anchoring of inflation expectations in line with the Governing Council’s aim of keeping inflation rates below, but close to, 2% over the medium

<sup>1</sup> See Papademos, L. and Stark, J. (eds.) (2010), *Enhancing monetary analysis*, ECB.

term. This medium-term orientation implied that monetary policy had to look beyond short-term movements in prices and remedy dysfunctions in the monetary transmission mechanism. It was the monetary analysis in particular that ensured such a medium-term orientation in the conduct of monetary policy.

At times of heightened stress and uncertainty, the ECB used its liquidity operations in a pragmatic manner. In addition to reducing conventional interest rates to historically low levels, the Governing Council decided to adopt non-standard measures – which became known as Enhanced Credit Support – to restore the transmission mechanism of monetary policy. All non-standard measures are of a temporary nature and are generally designed to phase out automatically. They are all aimed at ensuring continued maintenance of price stability over the medium term.

---

The remainder of the book is structured as follows. Chapter 1 describes the main institutional aspects that are relevant for understanding the single monetary policy. Getting acquainted with the ECB's monetary policy requires a sound knowledge of the institutional framework of EMU. This chapter covers fundamental aspects, such as the primary objective of the Eurosystem and central bank independence.

Chapter 2 offers a broad overview of the main economic and financial structures of the euro area economy. The key characteristics of the real economy are considered first, focusing on the composition of output,

demographic and key labour market features, fiscal policy and patterns of trade between the euro area and the rest of the world. The key characteristics of the financial structure are also described by examining financial markets and financial institutions.

Chapter 3 describes the ECB's monetary policy strategy, i.e. the ECB's general approach to achieving its primary objective of maintaining price stability. After explaining the key features of the monetary policy transmission mechanism and their implications for the conduct of monetary policy, the chapter focuses on the central elements of the ECB's strategy. It also looks at the role of the ECB's monetary policy strategy in guiding the policy response to the global financial crisis.

Chapter 4 explains how the Eurosystem implements monetary policy decisions using its monetary policy instruments. It starts with an overview of the objectives and general principles that govern the functioning of the Eurosystem's operational framework and describes the main monetary policy instruments in greater detail (open market operations, the minimum reserve system and the standing facilities). It concludes with a brief assessment of the operational framework's performance in the first 12 years of the single monetary policy.

Chapter 5 describes how monetary policy has been conducted in the euro area since 1999. The period has been challenging for the euro area, given that it has been confronted with a host of economic and financial shocks of varying nature, size and persistence. Against this backdrop, the

Governing Council took its monetary policy decisions with a clear focus on the need to maintain price stability over the medium term.

In the bibliography you will find references for further reading on topics that could not be covered in full in this publication.

The novelty and richness of the ECB's monetary policy strategy has often sparked intense debate among both academics and market practitioners. This book should be seen as part of our constant effort to explain the ECB's approach to monetary policy.

Frankfurt am Main, May 2011

A handwritten signature in blue ink, reading "Jürgen Stark". The signature is written in a cursive style with a large initial 'J' and 'S'.

Jürgen Stark  
Member of the Executive  
Board of the ECB

# I THE INSTITUTIONAL FRAMEWORK OF THE SINGLE MONETARY POLICY

On 1 January 1999 the European Central Bank (ECB) assumed responsibility for monetary policy decision-making in the euro area – the second largest economic area in the world after the United States. The transfer of this responsibility from 11 national central banks (NCBs) – which became 17 with the participation of Estonia on 1 January 2011 – to a new supranational institution represented a milestone in a long and complex process of integration among European countries. Twelve years on, the ECB enjoys a high degree of credibility worldwide for its sound monetary policy of ensuring price stability in the euro area. This chapter describes the main institutional aspects that are relevant for understanding the single monetary policy.

Legal basis for the single monetary policy

## The ECB, the Eurosystem and the ESCB

The legal basis for the single monetary policy is laid down in the Treaty on European Union (TEU), the Treaty on the Functioning of the European Union (TFEU), and the Statute of the European System of Central Banks and of the European Central Bank (the Statute of the ESCB).<sup>1</sup> Excerpts from the most relevant legal provisions can be found in Box 1.1.

The ECB, the Eurosystem and the ESCB

The Treaties and the Statute of the ESCB, which is annexed to the Treaties as a protocol, establish the ECB, the Eurosystem and the European System of Central Banks (ESCB). The ECB is an institution of the EU (Article 13 of the TEU). The Eurosystem is made up of the ECB and the NCBs of the EU Member States whose currency is the euro,<sup>2</sup> whereas the ESCB comprises the ECB and the NCBs of all EU Member States (Article 282(1) of the TFEU).<sup>3</sup> As long as there are EU Member States whose currency is not the euro, it will be necessary to make a distinction between the “Eurosystem” and the “ESCB”.

## Enlargement of the euro area

The term “euro area” refers to the area formed by the EU Member States whose currency is the euro. This area currently stretches from Cyprus to Ireland and from Portugal to Finland. To date, more than half of the EU Member States have adopted the euro as their official currency.

Euro area

Since the introduction of the euro in 1999 in 11 EU Member States, the euro area has undergone five rounds of enlargement that have brought the number of euro area countries to 17 (in 2011). There are currently 10 EU Member States whose currency is not the euro (i.e. Bulgaria, the Czech Republic, Denmark, Latvia, Lithuania, Hungary, Poland, Romania, Sweden and the United Kingdom). Denmark and the United Kingdom have a special status (based on an “opt-out clause”); the other eight countries are prospective candidates for adoption of the euro (i.e. “Member States with a derogation”).

Euro area enlargement

<sup>1</sup> The Treaty of Lisbon entered into force on 1 January 2009 and has amended the Treaty on European Union.

<sup>2</sup> The governors of the NCBs of those EU Member States whose currency is not the euro do not participate in monetary policy decision-making for the euro area and such NCBs do not participate in the operational implementation of these decisions.

<sup>3</sup> In contrast to the ESCB as a whole, the ECB has been vested with legal personality by the Treaties. Each of the NCBs has legal personality, as laid down by the national laws of the respective country.

Need for sustainable convergence

Once a country has joined the euro area, it is no longer able to use domestic interest and exchange rate policies as separate policy instruments. If convergence is not sustainable, a country might run into competitiveness problems, which it can no longer address through exchange rate adjustments. Therefore, to be able to integrate smoothly into the euro area, EU Member States must fulfil a number of legal and economic preconditions, known as convergence criteria. The legal convergence criteria oblige prospective countries to bring their national laws into line with the relevant legislation applying to the Eurosystem (e.g. central bank independence). The economic convergence criteria refer to the need for a high degree of price stability, a sound fiscal position, exchange rate stability and converging long-term interest rates.

### **The Eurosystem's mandate, independence and reporting obligations**

Overriding importance of price stability

Article 127(1) of the TFEU – which refers to the ESCB rather than to the Eurosystem, since it was drawn up on the premise that all EU Member States would eventually adopt the euro – states that the primary objective of the ESCB is to maintain price stability and that, without prejudice to the objective of price stability, the ESCB will support the general economic policies in the EU with a view to contributing to the achievement of the objectives of the EU as laid down in Article 3 of the TEU.

Article 3 of the TEU sets out the objectives of the EU, which include, among other things, the sustainable development of Europe based on balanced economic growth and price stability, and a highly competitive social market economy, aiming at

full employment and social progress. Price stability is therefore not only the primary objective of the ECB's monetary policy, but also an objective of the EU as a whole. The Treaties thus establish a clear hierarchy of objectives for the Eurosystem, which clarifies that price stability is the most important contribution that monetary policy can make to achieving a favourable economic environment and a high level of employment.

A flexible exchange rate regime has been adopted for the euro, as is also the case for the US dollar. Hence, the exchange rate is not a separate policy instrument. When conducting its monetary policy, the ECB takes the exchange rate into account insofar as it affects the general economic situation and outlook for price stability (see Chapter 3). While the Treaties foresee that decisions on foreign exchange arrangements are a shared responsibility of the ECOFIN Council (de facto, the Eurogroup) and the ECB, their provisions ensure that foreign exchange policy is fully consistent with the primary objective of the single monetary policy. Article 119 of the TFEU explicitly states that the primary objective of both the single monetary policy and exchange rate policy is to maintain price stability. Furthermore, as regards the overall framework within which exchange rate policy is to be conducted, the Treaties require that decisions in this area be without prejudice to the primary objective. Finally, the sole competence for deciding on and carrying out operations in the foreign exchange market lies with the Eurosystem.

Exchange rate regime supports price stability

The euro area is characterised by a unique combination of centralised *monetary* policy-making and largely

Monetary policy and fiscal policies

decentralised, albeit closely coordinated, *fiscal* policy-making. This feature of “one monetary policy and many fiscal policies” is at the heart of the institutional set-up which governs the interactions between monetary and fiscal policies in the euro area and aims to ensure the smooth functioning of Economic and Monetary Union (EMU). At the same time, EU Member States have to treat their economic policies as a matter of common concern and coordinate them within the EU Council (Article 121(1) of the TFEU). The framework is based on clearly specified objectives and a clear allocation of responsibilities between policy areas. Concerning the interactions between monetary policy and fiscal policies, the framework is conducive to well-aligned policy outcomes, provided that all policy-makers live up to their responsibilities.

**Arrangements  
for sound fiscal  
policies**

Fiscal policies have a significant impact on economic growth, macroeconomic stability and inflation. A number of institutional arrangements for sound fiscal policies have been agreed at the EU level, also with a view to limiting risks to price stability (see Box 2.1). These include:

- the prohibition of monetary financing (Article 123 of the TFEU);
- the prohibition of privileged access to financial institutions (Article 124 of the TFEU);
- the no-bail-out clause (Article 125 of the TFEU);
- the fiscal provisions for avoiding excessive government deficits (Article 126 of the TFEU, which also sets out the excessive deficit procedure);
- the Stability and Growth Pact (secondary legislation based on Articles 121 and 126 of the TFEU).

The institutional framework for the single monetary policy has established a central bank that is independent from political influence. A large body of theoretical analysis, supported by substantial empirical evidence, indicates that central bank independence is conducive to maintaining price stability. Article 130 of the TFEU lays down this important principle. When exercising the powers and carrying out the tasks and duties conferred upon them, neither the ECB nor the NCBs, nor any member of their decision-making bodies, are allowed to seek or take instructions from EU institutions or bodies, from any government of a Member State or from any other body. Furthermore, under this article, the EU institutions and bodies and the governments of the EU Member States must also respect the principle of independence and not seek to influence the members of the decision-making bodies of the ECB or the NCBs in the performance of their tasks.

There are also other provisions that safeguard the independence of the Eurosystem and the decision-making bodies of the ECB. For example, the ECB’s financial arrangements are kept separate from the financial interests of the EU: the ECB has its own budget, and its capital is subscribed and paid up by the euro area NCBs. Long terms of office for the members of the ECB’s Governing Council and a rule stipulating that members of the ECB’s Executive Board cannot be re-appointed also help to protect individual members of the ECB’s decision-making bodies from potential political influence. Moreover, the Eurosystem’s independence is preserved further by the fact that the Treaties prohibit any provision of central bank credit to the public sector (see Box 2.1).

**Independence  
from political  
influence**

**Further  
provisions  
that help  
to safeguard  
independence**

## Reporting obligations

To ensure legitimacy, an independent central bank must be accountable to democratic institutions and the general public for its actions in the pursuit of its mandate. In full respect of the Eurosystem's independence, Article 15 of the Statute of the ESCB imposes precise reporting obligations on the ECB. For example, the ECB is required to publish quarterly reports on the activities of the Eurosystem, as well as a weekly consolidated financial statement. In addition, it must provide an annual report on its activities and on the monetary policy of both the previous and the current year, which is addressed to the European Parliament, the EU Council, the European Commission and the European Council. Moreover, in keeping with Article 284 of the TFEU, the ECB's President and other Executive Board members appear frequently at hearings organised by the European Parliament's Committee on Economic and Monetary Affairs. In practice, the ECB has gone beyond these statutory reporting requirements (see Chapter 3).

## Tasks carried out through the Eurosystem

Under Article 127(2) of the TFEU, the basic tasks carried out through the Eurosystem are:

- the definition and implementation of the monetary policy of the euro area;
- the conduct of foreign exchange operations;
- the holding and management of the official foreign reserves of the EU Member States;
- the promotion of the smooth operation of payment systems.

Further tasks concern the following areas: *Banknotes*: the ECB has

the exclusive right to authorise the issuance of banknotes within the euro area. *Statistics*: in cooperation with the NCBs, the ECB collects the statistical information necessary for the Eurosystem to perform its tasks, either from national authorities or directly from economic agents. *Financial stability and supervision*: the Eurosystem contributes to the smooth conduct of policies pursued by the authorities in charge of the prudential supervision of credit institutions and the stability of the financial system. *International and European cooperation*: the ECB maintains working relations with relevant institutions, bodies and fora, both within the EU and internationally, in respect of tasks entrusted to the Eurosystem.

In an environment of financial stability, price stability is the best contribution monetary policy can make to achieving other objectives (see also Chapter 3). At the same time, financial instability can undermine the central bank's ability to maintain price stability over the medium term. In a free market economy, achieving and maintaining financial stability is first and foremost the responsibility of market participants, who are expected to assess and manage their risks effectively and to bear the financial consequences of their transactions. The fact that financial stability is deemed to be a "public good" requires, nonetheless, that an institutional framework to safeguard financial stability and mitigate the effects of instability is in place.

In order to promote financial stability, the Treaties provide for specific cooperation mechanisms. First, under Article 127(5) of the TFEU, the Eurosystem has to contribute to the smooth conduct of policies pursued by

Monetary policy and financial stability

Existing mechanisms for cross-border cooperation

the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system. Second, according to Article 25.1 of the Statute of the ESCB, the ECB must be consulted on any proposed EU act or any draft legislative provision of the national authorities that relates to its fields of competence. Similarly, the ECB may offer advice to, and be consulted by, the EU Council, the European Commission and the competent national authorities on the scope and implementation of EU legislation relating to the prudential supervision of credit institutions and the stability of the financial system. Finally, Article 127(6) of the TFEU foresees the possibility of transferring specific supervisory tasks to the ECB following a simplified procedure without the need to amend the legislation.

**New mechanisms  
for cross-border  
cooperation**

In order to address severe tensions in financial markets the following new programmes were created in 2010: the European Financial Stabilisation Mechanism (EFSM) and the European Financial Stability Facility (EFSF). The EFSM has been operational since 10 May 2010, and the EFSF became fully operational on 4 August 2010. The EFSF has been authorised to issue bonds in the market, which will be guaranteed by the euro area countries. Loans to a country in difficulty under the EFSM and EFSF must be accompanied by a detailed and demanding set of policy conditions. In March 2011 the EU Council decided to establish a permanent crisis management framework, the European Stability Mechanism (ESM). The ESM will complement the new framework of reinforced governance from June 2013.

**No euro area-wide  
competence  
for prudential  
supervision**

The institutional framework does not give the Eurosystem direct supervisory competencies. In several euro area

countries, but not all, central banks are responsible for, or at least closely involved in, prudential supervision and supervisory functions. The decentralised allocation of responsibilities has created a need for close cooperation (i) within the Eurosystem, between the ECB and the NCBs, in order to monitor potential euro area-wide risks to financial stability, and (ii) between the Eurosystem and national supervisors to ensure the close coordination of central banking and supervisory functions in contributing to safeguard financial stability.

The Eurosystem carries out two main functions in these areas. First, it monitors and assesses the main risks to euro area financial system stability and also conducts market operations that aim to address general financial shocks and relieve tensions in the euro area money market. Moreover, the Eurosystem contributes to the definition of the financial stability policies of the competent national and EU authorities pertaining to financial stability monitoring and assessment, financial regulation and supervision, and crisis management. Second, the Eurosystem oversees market infrastructures as part of its basic task of promoting the smooth operation of payment systems.

As the financial crisis has shown yet again, global financial markets and interconnected financial institutions are subject to systemic risks. In order to mitigate the exposure of the system to the risk of failure of systemic components and to enhance the overall EU financial system's resilience to shocks, important institutional changes were introduced. On 1 January 2011 the EU's new financial supervisory architecture became operational. It includes three new European

**A new EU  
financial  
supervisory  
architecture**

Supervisory Authorities (ESAs) for banking, insurance and securities markets to enhance micro-prudential supervision and the European Systemic Risk Board (ESRB), an independent EU body, responsible for the macro-prudential oversight of the financial system within the EU. The ECB ensures the Secretariat function for the ESRB, and is also in charge of providing analytical, statistical, administrative and logistical support to the new EU body.

**The tasks of the ESRB**

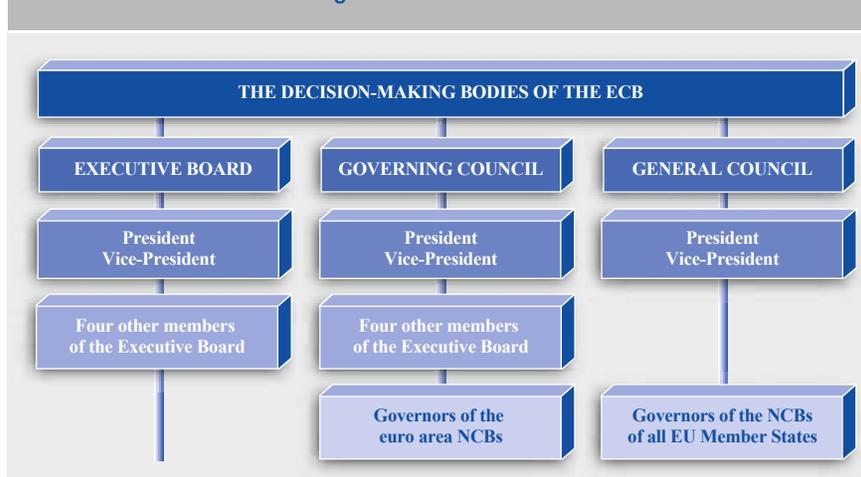
The ESRB contributes to the prevention or mitigation of systemic risks to financial stability in the EU that arise from developments within the financial system. For this purpose, and particularly with a view to avoiding widespread financial distress, the ESRB takes into account macroeconomic developments. The ESRB thus contributes to the smooth functioning of the internal market and thereby ensures a sustainable contribution of the financial sector to economic growth. Its main tasks are to monitor and assess systemic risk and to issue warnings and, where necessary, recommendations to the relevant policy-makers with a

timeline for the relevant policy response. The ECB's support of the ESRB is without prejudice to the principle of central bank independence. All members of the ECB's General Council are voting members of the General Board of the ESRB. The President of the ECB is the first Chair of the ESRB for a term of five years. The first Vice-Chair is a member of the General Council of the ECB and is also appointed for a term of five years. The Steering Committee of the ESRB includes the President of the ECB, the Vice-President of the ECB and four other members of the General Council.

**The decision-making bodies of the ECB**

The monetary policy of the ECB is based on a collective decision-making system (Articles 129 and 132 of the TFEU). There are two decision-making bodies of the ECB (Article 129(1) of the TFEU) which are responsible for the preparation, conduct and implementation of the single monetary policy: the Governing Council and the Executive Board (see Chart 1.1). A third decision-making body of the ECB is the General Council.

**Chart 1.1 The decision-making bodies of the ECB**



### Governing Council of the ECB

The Governing Council of the ECB consists of the six members of the Executive Board and the governors of the euro area NCBs (17 governors in 2011). Both the Governing Council and the Executive Board are chaired by the President of the ECB or, in his absence, by the Vice-President. The responsibilities of the Governing Council are:

- to adopt the guidelines and take the decisions necessary to ensure the performance of the tasks entrusted to the Eurosystem;
- to formulate the monetary policy of the euro area.

In accordance with Article 12.1 of the Statute of the ESCB, the formulation of monetary policy for the euro area includes taking decisions on “intermediate monetary objectives, key interest rates and the supply of reserves” in the Eurosystem. Moreover, the Governing Council establishes the necessary guidelines for the implementation of those decisions.

### Executive Board of the ECB

The Executive Board of the ECB consists of the President, the Vice-President and four other members, all of whom – since the entry into force of the Treaty of Lisbon – are appointed by the European Council, acting by a qualified majority, on a recommendation from the Council of the European Union. In accordance with Articles 12.1 and 12.2 of the Statute of the ESCB, the Executive Board:

- prepares the meetings of the Governing Council;
- implements monetary policy in accordance with the guidelines and decisions laid down by the Governing Council and, in so doing, gives the necessary instructions to the euro area NCBs;

- is responsible for the current business of the ECB;
- assumes certain powers delegated to it by the Governing Council, which may include powers of a regulatory nature.

The General Council of the ECB is composed of the President and Vice-President of the ECB and the governors of the NCBs of all EU Member States (27 in 2011). It will remain in existence for as long as there are EU Member States whose currency is not the euro. The General Council has no responsibility for monetary policy decisions in the euro area. It carries out those tasks inherited from the European Monetary Institute (EMI) that still have to be performed precisely because the euro is not the currency of all EU Member States.<sup>4</sup> In accordance with Articles 43, 44 and 46 of the Statute of the ESCB and Article 141(2) of the TFEU, the General Council contributes to:

- strengthening the coordination of the monetary policies of the EU Member States whose currency is not the euro, with the aim of ensuring price stability;
- the collection of statistical information;
- the reporting activities of the ECB;
- the necessary preparations for irrevocably fixing the exchange rates of EU Member States whose currency is not the euro.

### Voting modalities in the Governing Council

Decisions on monetary policy and on the other tasks of the Eurosystem in the euro area must be based on a euro area perspective. When taking decisions, the members of the Governing Council do not act as national representatives but in a fully independent, personal

### General Council of the ECB

<sup>4</sup> For further details on the history of EMU, see also the annex.

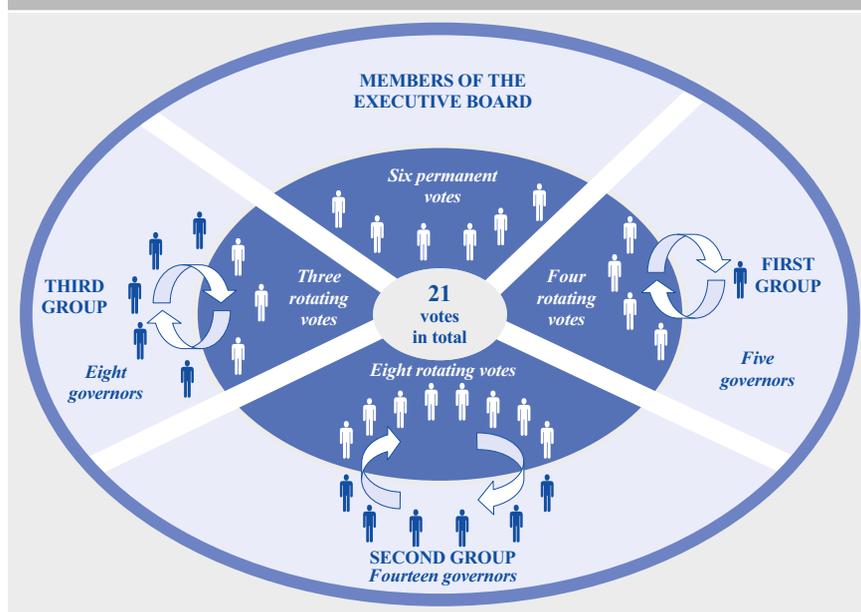
capacity. Each member has one vote. In the event of a tie, the President of the ECB has a casting vote. Article 10.2 of the Statute of the ESCB states that the Governing Council must act by a simple majority. In practice, monetary policy decisions have generally been supported by a “consensus” among members of the Governing Council.

participation, “representativeness”, robustness and automaticity, equal treatment, transparency and simplicity. On 19 March 2009 the Governing Council decided to implement a rotation system for voting rights in the Governing Council, as laid down in a new Article 3a of the ECB’s Rules of Procedure. Under this new system, all six members of the Executive Board will maintain a permanent voting right, but the voting rights of NCB governors will be subject to a rotation system once the number of euro area countries exceeds 18.<sup>5</sup> Governors will be allocated to groups according to a key set out in Article 10.2 of the Statute of the ESCB. Governors will rotate in and out of voting rights after one month. For the first group, the number of voting rights that rotate in each one-month period will be one; for the second and third group, the number of voting rights

**Adjustment of voting modalities in the Governing Council**

With further enlargements of the euro area, the Governing Council still needs to take decisions in a timely and efficient manner; so a new voting system was required. On 21 March 2003 the European Council approved an amendment to Article 10.2 of the Statute of the ESCB which provides for an adjustment of the voting modalities in the Governing Council. The implementation of a new rotation system aims to respect the principles of “one member, one vote”, ad personam

**Chart 1.2 Three-group rotation system for the Governing Council of the ECB with 27 countries in the euro area**



<sup>5</sup> On 18 December 2008 the Governing Council decided to continue its current voting regime and to introduce the rotation system only when the number of governors and presidents of the euro area NCBs exceeds 18, and not 15 as initially foreseen.

that rotate in each one-month period will be equal to the difference between the number of governors allocated to the group and the number of voting rights assigned to it, minus two. Chart 1.2 illustrates the three-group rotation system for a euro area comprising 27 countries. The rotation system ensures high participation of members combined with relative stability of the composition of the voting college. First, all governors attend all meetings of the Governing Council, irrespective of whether they hold a voting right at the time. Second, the rotation frequency will be such that periods without a vote for individual governors will be short.

### **The Eurosystem/ESCB committee structure**

Monetary policy decisions by the Governing Council benefit from the careful preparations and analyses of Eurosystem/ESCB staff. With the launch of the euro, the existing decentralised architecture was applied and refined. Eurosystem/ESCB committees are responsible for coordinating those Eurosystem/ESCB tasks that involve both the ECB and the NCBs.

ECB and cover most functional areas of the Eurosystem/ESCB work. These experts provide valuable input, in terms of expertise and technical advice, to the deliberations of the ECB's decision-making bodies. Moreover, these committees may operate a variety of working groups or task forces. Work at various levels contributes to shaping views and building consensus within the Eurosystem/ESCB.

The current Eurosystem/ESCB committees are: the Monetary Policy Committee (MPC), the International Relations Committee (IRC), the Market Operations Committee (MOC), the Statistics Committee (STC), the Payment and Settlement Systems Committee (PSSC), the Financial Stability Committee (FSC), the Banknote Committee (BANCO), the Committee on Cost Methodology (COMCO), the Information Technology Committee (ITC), the Internal Auditors Committee (IAC), the Eurosystem/ESCB Communications Committee (ECCO), the Legal Committee (LEGCO), the Accounting and Monetary Income Committee (AMICO), the Budget Committee (BUCOM), Human Resources Conference (HRC), the Eurosystem IT Steering Committee (EISC) and the Risk Management Committee (RMC).

Eurosystem/ESCB committees comprise experts from NCBs and the

**Eurosystem/ESCB committees**

## **Box 1.1 Key provisions from the Treaties and the Statute of the ESCB**

This box includes selected key monetary policy provisions taken from the Treaty on European Union, the Treaty on the Functioning of the European Union and the Statute of the ESCB. The full legal texts are available from: [www.europa.eu](http://www.europa.eu) and [www.ecb.europa.eu](http://www.ecb.europa.eu).

### **1. EXCERPTS FROM THE TREATY ON EUROPEAN UNION**

#### **Article 3**

3. The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly

competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance. [...]

4. The Union shall establish an economic and monetary union whose currency is the euro.

### **Article 13**

1. The Union shall have an institutional framework which shall aim to promote its values, advance its objectives, serve its interests, those of its citizens and those of the Member States, and ensure the consistency, effectiveness and continuity of its policies and actions.

The Union's institutions shall be:

- the European Parliament,
- the European Council,
- the Council,
- the European Commission (hereinafter referred to as 'the Commission'),
- the Court of Justice of the European Union,
- the European Central Bank,
- the Court of Auditors.

2. Each institution shall act within the limits of the powers conferred on it in the Treaties, and in conformity with the procedures, conditions and objectives set out in them. The institutions shall practice mutual sincere cooperation.

3. The provisions relating to the European Central Bank and the Court of Auditors and detailed provisions on the other institutions are set out in the Treaty on the Functioning of the European Union.

## **2. EXCERPTS FROM THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION**

### **Article 119**

1. For the purposes set out in Article 3 of the Treaty on European Union, the activities of the Member States and the Union shall include, as provided in the Treaties, the adoption of an economic policy which is based on the close coordination of Member States' economic policies, on the internal market and on the definition of common objectives, and conducted in accordance with the principle of an open market economy with free competition.

2. Concurrently with the foregoing, and as provided in the Treaties and in accordance with the procedures set out therein, these activities shall include a single currency, the euro, and the definition and conduct of a single monetary policy and exchange-rate policy the primary objective of both of which shall be to maintain price stability and, without prejudice to this objective, to support the general economic policies in the Union, in accordance with the principle of an open market economy with free competition.

3. These activities of the Member States and the Union shall entail compliance with the following guiding principles: stable prices, sound public finances and monetary conditions and a sustainable balance of payments.

**Article 121**

1. Member States shall regard their economic policies as a matter of common concern and shall coordinate them within the Council, in accordance with the provisions of Article 120.

**Article 127**

1. The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119.

2. The basic tasks to be carried out through the ESCB shall be:

- to define and implement the monetary policy of the Union,
- to conduct foreign-exchange operations consistent with the provisions of Article 219,
- to hold and manage the official foreign reserves of the Member States,
- to promote the smooth operation of payment systems.

3. The third indent of paragraph 2 shall be without prejudice to the holding and management by the governments of Member States of foreign-exchange working balances.

4. The European Central Bank shall be consulted:

- on any proposed Union act in its fields of competence,
- by national authorities regarding any draft legislative provision in its fields of competence, but within the limits and under the conditions set out by the Council in accordance with the procedure laid down in Article 129(4).

The European Central Bank may submit opinions to the appropriate Union institutions, bodies, offices or agencies or to national authorities on matters in its fields of competence.

5. The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.

6. The Council, acting by means of regulations in accordance with a special legislative procedure, may unanimously, and after consulting the European Parliament and the European Central Bank, confer specific tasks upon the European Central Bank concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings.

**Article 129**

1. The ESCB shall be governed by the decision-making bodies of the European Central Bank which shall be the Governing Council and the Executive Board.

**Article 130**

When exercising the powers and carrying out the tasks and duties conferred upon them by the Treaties and the Statute of the ESCB and of the ECB, neither the European Central Bank, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Union institutions, bodies, offices or agencies, from any

government of a Member State or from any other body. The Union institutions, bodies, offices or agencies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the European Central Bank or of the national central banks in the performance of their tasks.

#### **Article 219**

1. By way of derogation from Article 218, the Council, either on a recommendation from the European Central Bank or on a recommendation from the Commission and after consulting the European Central Bank, in an endeavour to reach a consensus consistent with the objective of price stability, may conclude formal agreements on an exchange-rate system for the euro in relation to the currencies of third States. The Council shall act unanimously after consulting the European Parliament and in accordance with the procedure provided for in paragraph 3.

The Council may, either on a recommendation from the European Central Bank or on a recommendation from the Commission, and after consulting the European Central Bank, in an endeavour to reach a consensus consistent with the objective of price stability, adopt, adjust or abandon the central rates of the euro within the exchange-rate system. The President of the Council shall inform the European Parliament of the adoption, adjustment or abandonment of the euro central rates.

2. In the absence of an exchange-rate system in relation to one or more currencies of third States as referred to in paragraph 1, the Council, either on a recommendation from the Commission and after consulting the European Central Bank or on a recommendation from the European Central Bank, may formulate general orientations for exchange-rate policy in relation to these currencies. These general orientations shall be without prejudice to the primary objective of the ESCB to maintain price stability.

#### **Article 282**

1. The European Central Bank, together with the national central banks, shall constitute the European System of Central Banks (ESCB). The European Central Bank, together with the national central banks of the Member States whose currency is the euro, which constitute the Eurosystem, shall conduct the monetary policy of the Union.

2. The ESCB shall be governed by the decision-making bodies of the European Central Bank. The primary objective of the ESCB shall be to maintain price stability. Without prejudice to that objective, it shall support the general economic policies in the Union in order to contribute to the achievement of the latter's objectives.

3. The European Central Bank shall have legal personality. It alone may authorise the issue of the euro. It shall be independent in the exercise of its powers and in the management of its finances. Union institutions, bodies, offices and agencies and the governments of the Member States shall respect that independence.

### **3. EXCERPTS FROM PROTOCOL (NO 4) ON THE STATUTE OF THE EUROPEAN SYSTEM OF CENTRAL BANKS AND OF THE EUROPEAN CENTRAL BANK**

#### **Article 10 (The Governing Council)**

10.2. Each member of the Governing Council shall have one vote. As from the date on which the number of members of the Governing Council exceeds 21, each member of

the Executive Board shall have one vote and the number of governors with a voting right shall be 15. The latter voting rights shall be assigned and shall rotate as follows:

- as from the date on which the number of governors exceeds 15, until it reaches 22, the governors shall be allocated to two groups, according to a ranking of the size of the share of their national central bank's Member State in the aggregate gross domestic product at market prices and in the total aggregated balance sheet of the monetary financial institutions of the Member States whose currency is the euro. The shares in the aggregate gross domestic product at market prices and in the total aggregated balance sheet of the monetary financial institutions shall be assigned weights of 5/6 and 1/6, respectively. The first group shall be composed of five governors and the second group of the remaining governors. The frequency of voting rights of the governors allocated to the first group shall not be lower than the frequency of voting rights of those of the second group. Subject to the previous sentence, the first group shall be assigned four voting rights and the second group eleven voting rights,
- as from the date on which the number of governors reaches 22, the governors shall be allocated to three groups according to a ranking based on the above criteria. The first group shall be composed of five governors and shall be assigned four voting rights. The second group shall be composed of half of the total number of governors, with any fraction rounded up to the nearest integer, and shall be assigned eight voting rights. The third group shall be composed of the remaining governors and shall be assigned three voting rights,
- within each group, the governors shall have their voting rights for equal amounts of time,
- for the calculation of the shares in the aggregate gross domestic product at market prices Article 29.2 shall apply. The total aggregated balance sheet of the monetary financial institutions shall be calculated in accordance with the statistical framework applying in the Union at the time of the calculation,
- whenever the aggregate gross domestic product at market prices is adjusted in accordance with Article 29.3, or whenever the number of governors increases, the size and/or composition of the groups shall be adjusted in accordance with the above principles,
- the Governing Council, acting by a two-thirds majority of all its members, with and without a voting right, shall take all measures necessary for the implementation of the above principles and may decide to postpone the start of the rotation system until the date on which the number of governors exceeds 18.

The right to vote shall be exercised in person. By way of derogation from this rule, the Rules of Procedure referred to in Article 12.3 may lay down that members of the Governing Council may cast their vote by means of teleconferencing. These rules shall also provide that a member of the Governing Council who is prevented from attending meetings of the Governing Council for a prolonged period may appoint an alternate as a member of the Governing Council.

The provisions of the previous paragraphs are without prejudice to the voting rights of all members of the Governing Council, with and without a voting right, under Articles 10.3, 40.2 and 40.3.

Save as otherwise provided for in this Statute, the Governing Council shall act by a simple majority of the members having a voting right. In the event of a tie, the President shall have the casting vote.

In order for the Governing Council to vote, there shall be a quorum of two-thirds of the members having a voting right. If the quorum is not met, the President may convene an extraordinary meeting at which decisions may be taken without regard to the quorum.

10.4. The proceedings of the meetings shall be confidential. The Governing Council may decide to make the outcome of its deliberations public.

#### **Article 12 (Responsibilities of the decision-making bodies)**

12.1. The Governing Council shall adopt the guidelines and take the decisions necessary to ensure the performance of the tasks entrusted to the ESCB under these Treaties and this Statute. The Governing Council shall formulate the monetary policy of the Union including, as appropriate, decisions relating to intermediate monetary objectives, key interest rates and the supply of reserves in the ESCB, and shall establish the necessary guidelines for their implementation.

The Executive Board shall implement monetary policy in accordance with the guidelines and decisions laid down by the Governing Council. In doing so the Executive Board shall give the necessary instructions to national central banks. In addition the Executive Board may have certain powers delegated to it where the Governing Council so decides.

To the extent deemed possible and appropriate and without prejudice to the provisions of this Article, the ECB shall have recourse to the national central banks to carry out operations which form part of the tasks of the ESCB.

12.2. The Executive Board shall have responsibility for the preparation of meetings of the Governing Council.

#### **Article 15 (Reporting commitments)**

15.1. The ECB shall draw up and publish reports on the activities of the ESCB at least quarterly.

15.2. A consolidated financial statement of the ESCB shall be published each week.

15.3. In accordance with Article 284(3) of the Treaty on the Functioning of the European Union, the ECB shall address an annual report on the activities of the ESCB and on the monetary policy of both the previous and the current year to the European Parliament, the Council and the Commission, and also to the European Council.

15.4. The reports and statements referred to in this Article shall be made available to interested parties free of charge.

#### **Article 17 (Accounts with the ECB and the national central banks)**

In order to conduct their operations, the ECB and the national central banks may open accounts for credit institutions, public entities and other market participants and accept assets, including book entry securities, as collateral.

#### **Article 18 (Open market and credit operations)**

18.1. In order to achieve the objectives of the ESCB and to carry out its tasks, the ECB and the national central banks may:

- operate in the financial markets by buying and selling outright (spot and forward) or under repurchase agreement and by lending or borrowing claims and marketable instruments, whether in euro or other currencies, as well as precious metals;
- conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral.

**Article 19 (Minimum reserves)**

19.1. Subject to Article 2, the ECB may require credit institutions established in Member States to hold minimum reserve on accounts with the ECB and national central banks in pursuance of monetary policy objectives. Regulations concerning the calculation and determination of the required minimum reserves may be established by the Governing Council. In cases of non-compliance the ECB shall be entitled to levy penalty interest and to impose other sanctions with comparable effect.

19.2. For the application of this Article, the Council shall, in accordance with the procedure laid down in Article 41, define the basis for minimum reserves and the maximum permissible ratios between those reserves and their basis, as well as the appropriate sanctions in cases of non-compliance.



## 2 THE ECONOMIC AND FINANCIAL STRUCTURE OF THE EURO AREA

The pursuit of the objective of price stability requires an understanding of the factors that shape the price formation process, including the transmission of monetary policy. This chapter provides an overview of the main economic and financial structures of the euro area economy. The key characteristics of the real economy are considered first, focusing on the composition of output, demographic and key labour market features, fiscal policy, as well as patterns of trade between the euro area and the rest of the world. Following on from this, the key characteristics of the financial structure are described by examining the money and capital markets and the main financial institutions involved, distinguishing monetary financial institutions (MFIs) from other financial intermediaries (OFIs).

### 2.1 KEY CHARACTERISTICS OF THE REAL ECONOMY

The euro area economy is the second largest in the world

While the individual economies that now comprise the euro area may be considered relatively small and open economies, the euro area as a whole forms a large, much more closed economy. Therefore, the structural features of the euro area are better compared with those of the United States or Japan than with those of individual euro area countries. A number of key macroeconomic characteristics of the euro area are presented in Table 2.1.<sup>6</sup>

Population and share in world GDP

Measured in terms of population, the euro area is the largest developed economy in the world. In 2009 it had a total population of 330.5 million, somewhat larger than that of the United States and more than twice as large as the population of Japan. The euro area had a 15.1% share of world GDP in 2009 (expressed in terms of purchasing power parity), compared with 20.4% for the United States and 6.0% for Japan. The shares of the individual euro area countries were

significantly smaller, with the largest economy within the euro area accounting for 4.0% of world GDP in 2009.

The structure of production in the euro area closely resembles that in the United States and Japan. In all three economies, the services sector accounts for the largest share of total output. There is, however, an important difference in the shares of the public and private sectors in the overall services sector in the United States compared with the euro area. Specifically, the public services sector in the United States is relatively small, while it accounts for a much larger share of the euro area economy. In all three economies, the industrial sector accounts for the second largest share of total output. Given the highly developed nature of these economies, the share of agriculture, fishing and forestry is relatively small.

Services sector has largest share of euro area GDP

### 2.2 LABOUR MARKET

Since 1999 more than 13 million jobs have been created in the euro area, whereas in the ten years prior to

Structural unemployment in the euro area

<sup>6</sup> Several tables and charts in this section are regularly updated on the ECB's website.

**Table 2.1 Key characteristics of the euro area real economy in 2009**

	Unit	Euro area	United States	Japan
Population <sup>1)</sup>	millions	330.5	307.5	127.7
GDP (share of world GDP) <sup>2)</sup>	%	15.1	20.4	6.0
GDP per capita <sup>2)</sup>	€ thousands	27.1	36.9	25.8
Value added by economic activity				
Agriculture, fishing, forestry	% of GDP	1.6	1.1*	1.6*
Industry (including construction)	% of GDP	24.1	21.0*	27.3*
Services (including non-market services)	% of GDP	74.3	77.9*	71.1*
Unemployment rate (share of the labour force)	%	10.0**	9.6**	5.1**
Labour force participation rate <sup>3)</sup>	%	71.5	74.6	74.0
Employment rate <sup>4)</sup>	%	64.7	67.6	70.0
General government				
Surplus (+) or deficit (-)	% of GDP	-6.3	-11.3	-8.7
Gross debt <sup>5)</sup>	% of GDP	79.2	68.6	180.4
Revenue	% of GDP	44.6	26.6	31.6
<i>of which: direct taxes</i>	% of GDP	11.4	9.7	7.8
<i>of which: indirect taxes</i>	% of GDP	13.1	7.3	8.2
<i>of which: social contributions</i>	% of GDP	15.7	6.9	11.7
Expenditure <sup>6)</sup>	% of GDP	50.8	37.9	40.4
<i>of which: final consumption</i>	% of GDP	22.2	17.1	20.1
<i>of which: social payments</i>	% of GDP	24.3	15	25.0
External <sup>7)</sup>				
Exports of goods	% of GDP	14.4	7.6	10.8
Exports of goods and services	% of GDP	19.7	11.1	13.3
Imports of goods	% of GDP	14.0	11.2	9.9
Imports of goods and services	% of GDP	18.9	13.8	12.9
Exports (share of world exports, including intra-euro area trade)	%	29.1	8.6	4.7
Exports (share of world exports, excluding intra-euro area trade)	%	16.9	10	5.5
Current account balance	% of GDP	-0.6	-2.7	2.8

Sources: Eurostat, IMF, European Commission, OECD, Thomson Reuters, ECB, national data and ECB calculations.

Notes:

- 1) Data for the euro area, United States and Japan refer to the annual average.
- 2) Data for the United States and Japan converted into euro at OECD purchasing power parities (PPPs).
- 3) Ratio of the labour force to the working age population (aged 15 to 64). US data refer to the proportion of the civilian non-institutional population (aged 16 to 64) either at work or actively seeking work. Annual average.
- 4) Ratio of persons employed to the working age population (aged 15 to 64). US data refer to the proportion of the civilian non-institutional population (aged 16 to 64) at work. Annual average.
- 5) Data follow Maastricht debt concepts and definitions. General government debt consists of deposits, securities other than shares and loans outstanding at nominal value and consolidated within the general government sector. Year-end.
- 6) European definition also applies to data for the United States and Japan.
- 7) Euro area data are based on extra-euro area transactions.

\*2008 figures.

\*\*2010 figures.

monetary union 7 million jobs were created. The unemployment rate – the number of unemployed persons as a share of the labour force – displayed cyclical fluctuations throughout the last decade. In the 1980s and 1990s the unemployment rate in the euro area reached very high levels as a result of both major shocks and structural rigidities (see Chart 2.1). In 2010 the average unemployment rate was 10.0%, corresponding to around 15.8 million unemployed persons in the euro area as a whole. The figures in 2010 were similar for both the euro area and US economies. By contrast, since 1980 the euro area unemployment rate has been, on average, markedly higher than that of the United States. This gap reflects structural differences between the labour markets in the United States and those in the euro area, which have led to a higher level of structural unemployment in the euro area. Reforms affecting institutional features of labour markets were implemented in

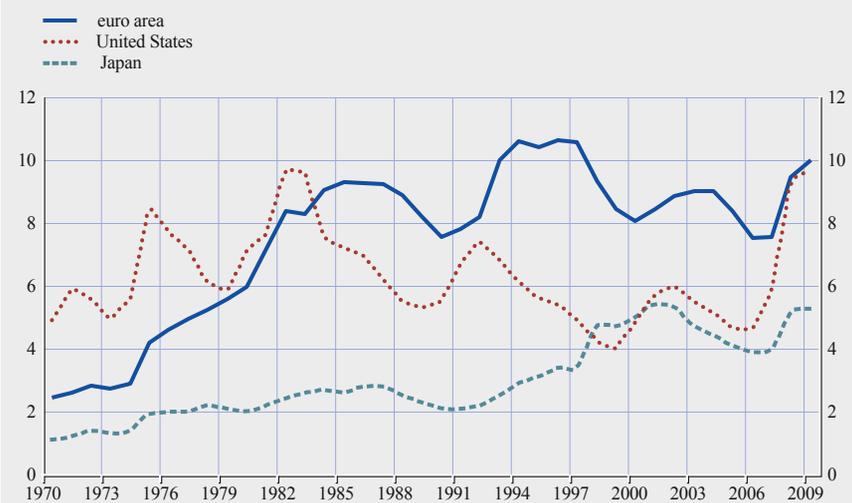
euro area countries during the 1990s, but to differing degrees. In some cases, these reforms significantly reduced the level of unemployment. Nevertheless, structural rigidities remain and these explain the still high levels of unemployment in the euro area.

Besides a relatively high unemployment rate, remarkably the euro area has a relatively low labour force participation rate (see Table 2.2). While the gap between the euro area and the US labour force participation rate has narrowed considerably over time, in 2009 the overall rate in the euro area (71.5%) was still lower than in the United States (74.6%). In terms of gender, the 2009 figures show that the gap was around 4 percentage points in the case of female participation, around twice the size of that for males. The lower overall labour force participation rate in the euro area relative to the United States mainly reflects differences in the youngest and oldest age groups. In general, Europeans

Relatively low labour force participation in the euro area

**Chart 2.1 Unemployment in the euro area, the United States and Japan**

(as a percentage of the labour force; annual data)



Source: European Commission.

**Table 2.2 Labour force participation rates by gender and age group in the euro area and the United States in 2009**

(as a percentage of the working age population)

	Euro area			United States		
	Males	Females	Total	Males	Females	Total
All age groups	78.5	64.6	71.5	80.4	69.0	74.6
15-24 <sup>1)</sup>	46.9	40.8	43.9	58.5	55.2	56.9
25-34	91.2	78.8	85.1	90.3	75.0	82.7
35-44	94.7	79.6	87.2	91.7	75.9	83.7
45-54	91.7	75.1	83.3	87.4	76.0	81.6
55-59	74.4	55.5	64.8	78.0	68.5	73.1
60-64	38.2	22.4	30.1	60.9	49.9	55.1

Sources: Eurostat and Bureau of Labour Statistics.

1) US data refer to the 16 to 24 age group.

in the youngest age group participate significantly less in the labour force than their American counterparts. This could be linked to differences in the traditions and structures of the education and social systems. People in the euro area also tend to leave the labour force at a younger age than people in the United States. By contrast, the difference between the participation rates for those aged 25 to 64 years is somewhat smaller.

**Euro area employment rate is relatively low**

The lower labour force participation rate in the euro area results in a lower employment rate (measured as the number of employed persons as a share of the population aged between 15 and 64) than in either the United States or Japan. In Japan's case this is also on account of a lower unemployment rate than in the euro area. The employment rate in the euro area in 2009 was around 65%, lower than in the United States and Japan (see Table 2.1). The relatively low employment rate in the euro area, together with a smaller number of hours worked per employed person, is one of the main reasons why GDP per capita is lower than in the United States.

The institutional aspects of labour markets, such as job protection legislation, unemployment benefit systems, the wage formation process and the taxation of labour, play a significant role in determining economic developments. For instance, structural rigidities in labour markets reduce the speed at which an economy adjusts to adverse economic shocks. Structural rigidities are therefore typically associated with relatively high and persistent unemployment rates. Moreover, rigidities in the labour market tend to limit the pace at which an economy can grow without fuelling inflationary pressures.

**Structural rigidities can hamper the efficient functioning of the labour market**

### 2.3 GOVERNMENT SECTOR

Fiscal policies have a significant impact on economic growth and inflation through a number of channels. Of particular relevance are the level and composition of government expenditure and revenue, as well as budget deficits and government debt. Unbalanced public finances may result in demand and inflationary pressures, forcing the monetary authority to keep short-term interest rates at a higher level than would

**Fiscal policies affect the economy**

otherwise be necessary. For instance, an excessive increase in government spending that stimulates aggregate demand could create inflationary pressure if it occurs when the economy is already operating at close to full capacity. Fiscal imbalances may also undermine confidence in a stability-oriented monetary policy if there are expectations that excessive government borrowing will in the end be accommodated by the central bank. Moreover, high levels of government debt may endanger financial stability by forcing the central bank to intervene in order to ensure the proper functioning of markets and the monetary transmission mechanism. Such levels of government debt may also have adverse effects on the real economic environment. For instance, excessive recourse to capital markets by governments tends to raise the cost of capital and possibly reduce private investment (resulting in what is known as “crowding out”). The Treaty on the Functioning of the European Union contains several provisions to avoid such risks, but it remains important for the ECB to follow fiscal policy developments in the euro area countries closely.

Sound fiscal policies needed for macroeconomic and financial stability

Fiscal discipline is a basic component of a smooth functioning monetary union. In an integrated single currency area with integrated financial markets, fiscal developments will also have an impact on other member countries. Although in Stage Three of EMU budgetary policies remain the exclusive competence of Member States, a number of institutional arrangements at the EU level ensure sound and sustainable public finances in all countries and therefore the euro area as a whole (see Box 2.1). In particular, the excessive deficit procedure provided for in the Treaty on the Functioning of

the European Union aims to limit the risks to price stability that might otherwise arise from unsound national fiscal policies. Those procedures were further developed and clarified in the Stability and Growth Pact adopted in 1997. It was significantly weakened by the reform in 2005 that introduced more flexibility and increased political discretion. The revised Stability and Growth Pact allows a Member State to present its own country-specific medium-term objective, which is then assessed by the EU Council. It also defines an annual structural budgetary adjustment effort of 0.5% of GDP to be pursued by a country as a benchmark, while taking into account possible budgetary costs as a result of implementing structural reforms.

Given the potential problems associated with fiscal imbalances, the obligation to avoid excessive deficits and maintain a sound medium-term budgetary position is vital to ensuring that national fiscal policies are conducive to overall macroeconomic and financial stability. In the decades preceding EMU, fiscal policies in many European countries were characterised by unsustainable rates of growth in spending, rising tax burdens and the steady build-up of government debt. Since then, the interest rate on outstanding debt has fallen considerably, particularly in the countries that benefited the most from the elimination of exchange rate risk and the transition to more stability-oriented policies in EMU. In the first years of EMU, the Stability and Growth Pact was broadly successful in ensuring the correction of excessive deficits once they occurred, albeit with undue delays and on the back of favourable economic conditions. However, the compliance by Member States with sound

medium-term budgetary objectives was generally disappointing. In the wake of the financial crisis, European institutions have therefore undertaken preparatory work to reinforce the SGP and establish a framework for the surveillance of macroeconomic imbalances.

**The relatively large share of government expenditure in euro area GDP...**

The general government sector (i.e. central, state and local government, as well as the social security sector) makes up a larger share of the euro area economy than it does in the United States or Japan. Government expenditure in the euro area accounted for 50.8% of GDP in 2009. In the United States, general government expenditure was lower at around 37.9% of GDP. Japan, meanwhile, recorded a ratio of government expenditure to GDP of around 40.4%.

**...reflects the high levels of final government consumption and social transfers to households**

The relatively large share of government expenditure in GDP in the euro area reflects, in particular, high levels of both final government consumption and social transfers to households. The cross-economy variation is partly caused by differences in the distribution of functions between the private and public sectors. Given the characteristics of social security systems in Europe, the age structure of the euro area population also contributes to the high level of government expenditure. Unless policy reforms are undertaken in the Member States affected, the situation will be exacerbated in the future by the expected ageing of the population. According to the baseline scenario of the European Commission and the Economic Policy Committee (2009), the ratio of age-related public expenditure to GDP in the euro area is projected to rise by 5.2 percentage points during the period 2007-60,

assuming no change in policy. The projections also suggest that the rise in public pension expenditure in the euro area is likely to accelerate after 2020, before slowing down somewhat after 2050.

With regard to the structure of government revenue, the euro area relies more heavily on social contributions than either the United States or Japan. Moreover, greater use is made of indirect taxation as a source of revenue in the euro area, while the United States relies more heavily than the euro area on direct taxation as a share of total tax revenue.

**Government revenue**

Government expenditure exceeded government revenue in the euro area as a whole throughout the period 1970-2009. Accordingly, the general government budget balance recorded a deficit in each year. The aggregate deficit for the euro area widened to close to 6% of GDP in 1993, but then diminished gradually to 1% of GDP in 2000 (see Chart 2.2). Thereafter, partly as a result of expenditure slippages, the government deficit increased again. In 2003 it accounted for 3% of GDP, but by the end of 2007 it had fallen again to below 1% owing mainly to favourable economic conditions. For its part, general government gross debt for the euro area as a whole reached a peak of 74% of GDP in 1996-97, having risen steadily over the previous two decades. Following a broad stabilisation for some years, the debt ratio declined moderately to attain 66% of GDP by the end of 2007. At the same time, at the national level, government deficit and debt ratios in many cases remained too high, considering the challenges arising from ageing populations.

**General government budget balance and gross debt**

In the wake of the unprecedented financial and economic crisis of 2008-09, the euro area deficit ratio worsened dramatically, reaching 6.3% of GDP in 2009. The euro area also experienced a rapid and sharp increase in the general government gross debt ratio – around 13 percentage points over two years – to stand at 79.1% in 2009. Fourteen of the euro area countries recorded deficits at or above the 3% of GDP reference value in

2009 and ten countries had a debt ratio above the 60% of GDP threshold (see Box 2.1). In the United States, the deficit ratio increased significantly to 11.3% of GDP in 2009, while the deficit ratio in Japan was 8.7% in 2009. The general government gross debt-to-GDP ratio in the United States was still somewhat lower than in the euro area and stood at 68.6% in 2009, whereas the ratio in Japan, at 180.4% in 2009, was much higher.

### **Box 2.1 EU institutional arrangements for sound and sustainable public finances**

While the Treaty on the Functioning of the European Union (TFEU) institutes a single monetary policy, it maintains national responsibilities for other economic (e.g. fiscal and structural) policies. However, Article 121 of the TFEU stipulates that Member States shall regard their economic policies as a matter of common concern. The Broad Economic Policy Guidelines (BEPGs) are the cornerstone of this set-up. Fiscal discipline is a key pillar for the smooth functioning of Economic and Monetary Union (EMU).

Therefore, the Treaty on the Functioning of the European Union contains a number of provisions that aim to ensure prudent fiscal policies and sound, sustainable public finances.

First of all, the Treaty on the Functioning of the European Union explicitly prohibits the financing of government deficits through central banks and the offering of any form of preferential conditions to the public sector by financial institutions. In addition to increasing the incentives to maintain fiscal discipline, these provisions contribute to the credibility of the single monetary policy in the pursuit of price stability. More specifically, Article 123 of the TFEU forbids the ECB and the NCBs to provide monetary financing for public deficits using “overdraft facilities or any other type of credit facility with the ECB or with the central banks of the Member States (...)”. Article 124 of the TFEU prohibits any measure that may establish privileged access to financial institutions for governments and EU institutions or bodies.

An essential complement to these ways of promoting stability-oriented fiscal policies is the “no bail-out” clause in the Treaty on the Functioning of the European Union, which makes clear that neither the EU nor any Member State is allowed to take over the commitments of another Member State. This clause ensures that the responsibility for repaying government debt remains national. It thus encourages prudent fiscal policies at the national level. More specifically, Article 125(1) of the TFEU states that the EU and each Member State “shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any other Member State (...)”.

In addition, the Treaty on the Functioning of the European Union specifies an excessive deficit procedure, as defined in Article 126 and a protocol annexed thereto. This procedure lays down the conditions that must prevail for a budgetary position to be judged sound. Article 126(1) of the TFEU decrees that “Member States shall avoid excessive government deficits.” Compliance with this requirement is assessed on the basis of a reference value for the government deficit-to-GDP ratio of 3% and a reference value for the government debt-to-GDP ratio of 60%. Under conditions defined in the Treaty on the Functioning of the European Union and further specified in the Stability and Growth Pact, deficit or debt ratios above the reference values may be considered not to imply the existence of an excessive deficit. Should the EU Council decide that an excessive deficit exists in a certain country, the excessive deficit procedure provides for further steps to be taken, ultimately including sanctions for persistent non-compliance.

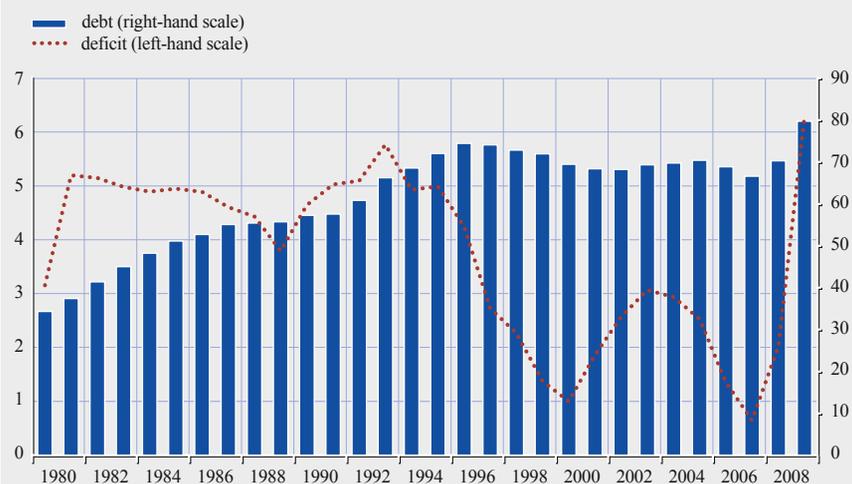
The fiscal framework was significantly enhanced in 1997 with the adoption of the Stability and Growth Pact, which came into effect from the start of Stage Three of EMU. It consists of the Resolution of the European Council on the Stability and Growth Pact, the Council Regulation on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies and the Council Regulation on speeding up and clarifying the implementation of the excessive deficit procedure. By agreeing to the Stability and Growth Pact, Member States have committed themselves to pursuing the medium-term objective of budgetary positions that are “close to balance or in surplus”. The idea is that having such positions would allow them to deal with the budgetary impact of normal cyclical fluctuations without breaching the 3% of GDP reference value and ensure a rapid convergence of debt ratios to prudent levels.

The “preventive arm” of the Stability and Growth Pact introduces a more concrete procedure of multilateral surveillance, whereby euro area EU Member States submit a stability programme and non-euro area EU Member States submit a convergence programme. These annual programmes present an overview of the economic and fiscal developments in each country, a medium-term objective for fiscal policy and an adjustment path towards the medium-term objective. In addition, the Stability and Growth Pact clarifies and streamlines the different steps and timetable of the excessive deficit procedure through its “corrective arm”.

The reform of the Stability and Growth Pact in 2005 introduced greater flexibility into the procedures related to the preventive and the corrective arms. With regard to the preventive arm, the revised Stability and Growth Pact introduced increased discretion concerning the setting of and progress towards the medium-term objective. As for the corrective arm, the use of discretion in determining an excessive deficit was widened and procedural deadlines were extended. Many observers, including the ECB, expressed concern at the time that these changes would undermine the effectiveness of the EU fiscal framework and could endanger the sustainability of the public finances of euro area countries. Following the strong deterioration of budgetary positions in the period to 2009, a further review of the Stability and Growth Pact in the context of a more general strengthening of economic governance in the EU and the euro area is underway.

**Chart 2.2 General government deficit and debt in the Euro 12**

(as a percentage of GDP)



Sources: European Commission, ECB and ECB calculations.

Note: Deficit data exclude the proceeds from sales of universal mobile telecommunications system (UMTS) licences, which were particularly significant in 2000 (around 1% of GDP).

## 2.4 EXTERNAL TRADE

**Euro area economy relatively open compared with the United States and Japan**

Since the euro area is a relatively open economy, particularly when compared with other major advanced economies, it can be significantly affected by developments in the global economy. In 2009 the combined value of exports and imports of goods and services was equivalent to around 38%

of GDP, in contrast to around 26% and 25% for Japan and the United States respectively (see Table 2.1). At the same time, it is far less open than the economies of its constituent member countries. This tends to limit the impact of external economic developments and, in particular, movements in external prices on domestic euro area prices.

**Table 2.3 External trade in goods of the euro area in 2009**

(share of total as a percentage)

	Exports	Imports
<b>Total trade</b>	<b>100</b>	<b>100</b>
<i>of which:</i>		
Machinery and transport equipment	41.0	31.4
Chemicals	17.5	10.8
Raw materials	2.3	4.0
Energy	4.2	20.1
Food, drink and tobacco	7.2	6.7
Other manufactured articles	24.8	24.5
Other	3.1	2.6

Sources: Eurostat and ECB calculations.

With regard to the composition of trade, goods account for around three-quarters of both euro area imports and euro area exports. Within the goods category, machinery and transport equipment made up more than 40% of exports in 2009. They also constituted the largest share of euro area goods imports (see Table 2.3). The second largest component was that of other manufactured articles, which had broadly the same share in both imports and exports. In 2009 chemicals accounted for 17.5% of goods exports but only 10.8% of imports, whereas the shares of raw materials and energy were considerably larger for imports than for exports. These figures show that, in net terms, the euro area tends to import raw

materials and intermediate goods, and to export processed goods. This in turn reflects the international division of labour and the availability of raw materials in the euro area.

Turning to the geographical distribution of euro area trade, the United Kingdom and the United States are the two largest trading partners of the euro area. Based on average trading flows over the period 1999-2009, the two countries together accounted for almost 28% of total euro area imports and exports (see Table 2.4). Over the same period, the euro area has also been trading increasingly with other non-euro area EU Member States, representing 11.1% of total euro area

**Table 2.4 Trade weights<sup>1)</sup> of the euro area's 20 main trading partners**

(percentage points)		
1	United Kingdom	14.96
2	United States	12.81
3	Other EU Member States <sup>2)</sup>	11.11
4	China	6.25
5	Switzerland	5.42
6	Russia	4.58
7	Japan	3.75
8	Sweden	3.58
9	Turkey	2.25
10	Denmark	2.24
11	Norway	2.10
12	Korea	1.61
13	Brazil	1.46
14	India	1.18
15	Taiwan	1.18
16	Canada	1.14
17	Saudi Arabia	1.11
18	Algeria	1.11
19	Singapore	1.03
20	South Africa	0.96

Source: ECB calculations based on Eurostat trade data.

- 1) Trade weights are the sum of exports and imports expressed as total of euro area exports and imports and are average figures for the period 1999-2009.
- 2) The other main trading partners that are also EU Member States are the Czech Republic, Cyprus, Estonia, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia until 2006. In 2007 Bulgaria and Romania were added, while Slovenia was removed. In 2008 Cyprus and Malta were removed.

trade, followed by China, Switzerland and Russia, with trade weights of 6.3%, 5.4% and 4.6% respectively.

## 2.5 FINANCIAL STRUCTURE

### Direct and indirect financing

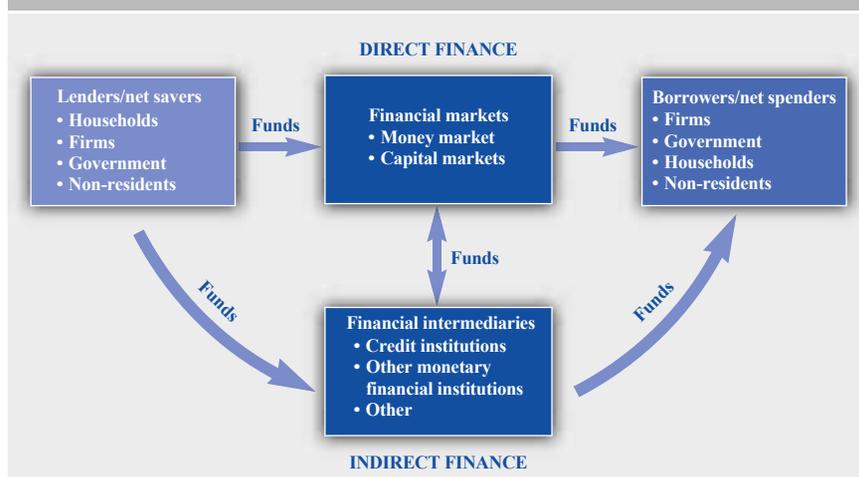
The financial system performs the essential economic function of channelling funds from those who are net savers (i.e. who spend less than their income) to those who are net spenders (i.e. who spend more than their income). The functions of financial systems are shown schematically in Chart 2.3. The most important lenders are normally households, but firms, the government and non-residents also sometimes find themselves with excess funds and so lend them out. Conversely, the principal borrowers are typically firms and the government, but households and non-residents also sometimes borrow to finance their purchases.

Funds flow from lenders to borrowers via two routes. In the case of direct

or “market-based” financing (the route shown at the top of Chart 2.3), debtors borrow funds directly from lenders in financial markets by selling them financial instruments, also called securities (such as debt securities and shares), which are claims on the borrower’s future income or assets. If financial intermediaries play an additional role in the channelling of funds, one refers to indirect or “bank-based” financing (see the route at the bottom of Chart 2.3). Financial intermediaries can be classified into credit institutions, other monetary financial institutions (MFIs) and other financial intermediaries.

In the functioning of the financial system, financial markets and financial intermediaries are not separate entities but are strongly interlinked. For example, funds can flow in both directions between direct and indirect financing (see the middle of Chart 2.3). Funds flow from markets to banks when financial intermediaries

Chart 2.3 Functions of financial systems



**Table 2.5 Main financial assets and liabilities of non-financial sectors in the euro area at the end of 2009<sup>1)</sup>**

(outstanding amounts)		
Selected financial assets	EUR billions	%
<i>Total</i>	20,889.3	100.0
<i>Currency and deposits</i>	8,858.0	42.4
Currency	656.0	3.1
Deposits with	8,202.0	39.3
Euro area MFIs	7,691.1	36.8
Non-MFIs	510.8	2.4
<i>Securities other than shares</i>	2,169.0	10.4
Short-term	181.2	0.9
Long-term	1,988.1	9.5
<i>Shares<sup>2)</sup></i>	4,236.0	20.3
Quoted shares	2,329.1	11.1
Mutual fund shares	1,906.6	9.1
o/w money market fund shares/units	473.8	2.3
<i>Insurance technical reserves</i>	5,627.0	26.9
Net equity of households in life insurance and pension funds reserves	5,137.1	24.6
Prepayments of insurance premiums and reserves for outstanding claims	489.4	2.3

Sources: ECB and Eurostat.

1) Non-financial sectors comprise general government, non-financial corporations and households, including non-profit institutions serving households.

2) Excluding unquoted shares.

issue debt and equity securities to raise funds in order to finance their activities. Conversely, funds flow from banks to markets when, for instance, financial intermediaries purchase securities issued by governments and firms either as own investments or as part of a money market fund. Another example of the interrelationship between financial markets and financial intermediaries lies in the fact that non-financial corporations that issue securities often depend on bridge financing – temporary loans to bridge the period before the funds obtained through securities issuance become available – and take advice from financial intermediaries. More recently, innovations in credit markets, such as securitisation and credit derivatives, have had a significant impact. In fact, by shifting the risk of corporate and

household loans off their balance sheets, banks have progressively assumed a new role, moving from their more traditional asset transformation role towards one in which they increasingly manage and trade credit risk via the financial markets. The other main structural development affecting corporate finance in recent years has been the growth of institutional investors such as pension funds, insurance companies, private equity and hedge funds. These investors have altered the channels of funds available to corporations and have changed the set of incentives faced by corporations.

Before describing in more detail the financial markets where direct financing takes place and the financial intermediaries that are involved in indirect financing, Table 2.5 provides

**Main financial assets and liabilities of the non-financial sectors**

**Table 2.5 (cont'd)**

(outstanding amounts)		
<b>Selected financial liabilities</b>	<b>EUR billions</b>	<b>%</b>
<i>Total</i>	26,437	100.0
<i>Loans</i>	15,467	58.5
a) Taken from		
Euro area MFIs	10,668	40.4
o/w short-term	1,570	5.9
o/w long-term	9,098	34.4
Other financial intermediaries	4,799	18.2
b) Granted to		
General government	1,350	5.1
Short-term	185	0.7
Long-term	1,165	4.4
Non-financial corporations	8,313	31.4
Short-term	2,385	9.0
Long-term	5,928	22.4
Households <sup>3)</sup>	5,805	22.0
Short-term	358	1.4
Long-term	5,447	20.6
<i>Securities other than shares</i>	6,996	26.5
General government	6,175	23.4
Short-term	1,008	3.8
Long-term	5,167	19.5
Non-financial corporations	821	3.1
Short-term	304	1.2
Long-term	517	2.0
<i>Quoted shares</i>		
issued by non-financial corporations	3,430	13.0
<i>Deposits</i>		
liabilities of central government	212	0.8
<i>Pension fund reserves</i>		
of non-financial corporations	332	1.3

3) Including non-profit institutions serving households.

an overview of the main financial assets and liabilities of the non-financial sectors in the euro area in terms of percentages of total amounts outstanding at the end of 2009. The outstanding financial assets and liabilities constitute the “stocks” in the quarterly framework of financial accounts.

(around 233% of annual GDP in the euro area) at the end of 2009. Currency and deposits accounted for around 42% of total assets at the end of 2009, while securities and shares accounted together for around 31%. Insurance technical reserves, i.e. the provisions of pension funds, insurance and non-financial corporations to cover the claims of policy holders, accounted for the remaining 27%.

**Total financial assets**

The total financial assets shown in Table 2.5 amounted to € 20,890 billion

## Box 2.2 Financial markets – key terms

Financial markets can be classified according to several criteria, illustrating different essential features of these markets. One possible classification is whether the financial transaction relates to the first purchase of a securities issue (“primary” market) or is a trade between holders of securities (“secondary” market). In turn, the secondary market can be organised in two ways. One is to organise exchanges, where buyers and sellers of securities meet in one central location to conduct trades (“exchange-traded” markets). The other is to have an “over-the-counter” (OTC) market, in which dealers transact securities with counterparties on a bilateral basis.

Markets can also be classified according to the original maturity of the financial contract traded on them. Generally a distinction is made between original maturities of less than one year and those of one year or more (“money” or “capital” markets). The money market differs somewhat from other financial markets in that it is typically a wholesale interbank market where transaction sizes are large. Moreover, the Eurosystem, through its monetary policy operations, can directly influence conditions in the money market (see Chapter 4). As the ECB is the monopoly supplier of central bank money, it can set the refinancing conditions for credit institutions in the euro area. This, in turn, influences the conditions at which credit institutions and other money market participants transact in the euro area money market.

Furthermore, for money and capital market instruments, a distinction is made between “collateralised” and “uncollateralised” instruments. For example, in the money market, the euro interbank offered rate (EURIBOR) refers to uncollateralised lending, whereas collateralised lending often takes the form of “repurchase agreements”, in which the borrower pledges collateral. If the collateral value is required to exceed the amount of funds borrowed, it is referred to as a “haircut”. In the capital markets, collateralised securities exist, for example, in the form of “covered bonds”, where the promise of the issuer to redeem the bond at maturity is backed by specific collateral. The “cover pool”, which typically includes mortgages, offers additional protection against default.

A final, commonly used classification refers to the form of the financial instrument traded in a market. One important distinction is between “equity” and “debt” markets. The main difference between equity and debt is that equity does not have to be repaid by the issuer, whereas debt is a financial claim which has to be repaid (in specified amounts, at a specified interest rate and on a specified date).

“Derivatives” constitute another important category of financial instruments. These are financial contracts the value of which derives from underlying securities prices, interest rates, foreign exchange rates, market indices or commodity prices. The basic classes of derivatives are futures, options, swaps and forward rate agreements. For example, the holder of a call (put) option has the right, but not the obligation, to buy (sell) a financial instrument (e.g. a bond or share) at a given price at a specified time in the future. Many other derivatives contracts have been developed by combining the basic categories. Derivatives can assist the functioning of the financial markets because they can be used to improve the pricing and allocation of financial risks. However, misvaluation and subsequent changes in the price of financial derivatives can induce disruptive movements in other asset prices.

## Total financial liabilities

The main liabilities shown in Table 2.5 amounted to €26,440 billion (295% of GDP) at the end of 2009. Loans accounted for 59% of total liabilities, whereas securities, including quoted shares, comprised around 40% of the financing sources of the non-financial sectors. Most of the funding (almost 81% of the liabilities) was at maturities exceeding one year.

## 2.6 FINANCIAL MARKETS

This section introduces the main features of the money, debt and equity markets in the euro area. Box 2.2 provides an overview of some key terms relating to financial markets.

### The money market

The money market plays a crucial part in the transmission of monetary policy decisions, since changes in monetary policy instruments affect the money market first (see Chapter 4). A deep and integrated money market is a precondition for an efficient monetary policy, since it ensures an even distribution of central bank liquidity and a homogeneous level of short-term interest rates across the single currency area. In the euro area, this precondition was met right from the start of Stage Three of EMU, when the national money markets were successfully integrated into an efficient euro area money market. The financial market turmoil in August 2008 and the subsequent crisis severely challenged the functioning of the money market, as they affected interbank relationships directly through an increase in liquidity risk and counterparty credit risk. The ECB adopted non-standard measures in order to help banks extend credit to the real economy, thereby promoting an efficient monetary policy transmission mechanism (see Box 5.1).

The rapid creation of the euro area money market was also supported by developments in the payment systems infrastructure, above all the establishment of the TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system, which allows the smooth functioning of the settlement of cross-border payments. The TARGET system interconnects the euro real-time gross settlement systems operated by the NCBs in the EU and the ECB's payment mechanism. The Governing Council of the ECB is responsible for the management and control of TARGET.

There are various "cash" segments in the euro area money market. One important segment is the unsecured market. The unsecured market is mainly devoted to the management of the liquidity needs of banks and, hence, the unsecured transactions are strongly concentrated on short maturities. There are two important reference rates for the unsecured money market, the EONIA (euro overnight index average) and the EURIBOR (euro interbank offered rate), which together provide uniform price references for maturities from overnight to one year.

The other main cash segments of the money market are the "repo" market and the market for swaps against foreign currencies. These markets are known as secured markets, since lending is done against assets acting as collateral. Over recent years, the repo market has developed to become the most important segment of the euro area money market. Repo transactions and swaps against foreign currencies are mainly concentrated on maturities of up to one month.

In addition to the cash segments mentioned above, the euro area money

## Role of the payment systems

### Unsecured parts of the money market

### Secured parts of the money market

### Derivatives markets

## Integration of the money market

market also includes derivatives segments. Interest rate swaps and forward rate agreements, as well as futures and options, are the most important derivatives. The most active instruments in these market segments are the EONIA swaps and EURIBOR futures.

From its inception until 2007, the euro money market displayed substantial (average) annual growth rates. However, this changed somewhat with the start of the financial turmoil in 2007. According to data from the ECB's Euro Money Market Survey, aggregate turnover in the euro money market decreased for a third consecutive year in the second quarter of 2010. This continued decline can be explained mainly by the ongoing adverse impact of the financial crisis on interbank activities and by the surplus liquidity environment that prevailed in the euro interbank market as a result of the high allotment volumes at the ECB refinancing operations with full allotment. The most notable decreases in activity took place in the EONIA swaps and the unsecured market segments. The contraction in unsecured turnover could partly be explained by the continued shift to secured funding resulting from the ongoing trend towards avoiding counterparty credit risk and by the decline in demand for liquidity resulting from the surplus liquidity environment that prevailed in the second quarter of 2010. There are also indications that an increasing share of banks' term funding took place through the issuance of short-term securities rather than through the collection of interbank deposits.

The secured market remained the largest segment of the euro money market and continued to grow in the second quarter of 2010. The increase in turnover was driven by maturities

of up to one month, which continued to account for the largest part of the secured market. The increase is largely explained by the continued trend for a reduction of counterparty credit risk. In the derivatives market segments, over the past four years there has been a notable decline in the EONIA swaps segment, which used to be the most liquid derivatives segment. This has mainly been driven by the need of banks to shorten their balance sheets in the light of the financial turmoil and by the relative stability of short-term interest rate expectations. On the other hand, there has been an increase in the importance of the forward rate agreements and foreign exchange swaps segments. Although the financial turmoil has been a challenge for market integration, ECB data show that the euro money market segments generally remain highly integrated.

#### Debt securities markets

The money market also includes the market for short-term securities (e.g. commercial paper, certificates of deposit, etc). The total amount outstanding of short-term debt securities issued by euro area residents increased steadily throughout the past decade, peaking in the spring of 2009. Disrupted by the recent financial turmoil, the short-term debt securities market has contracted somewhat since then, amounting to €1,625 billion at the end of 2009, i.e. 18.1% of euro area GDP (see Table 2.6). This is still twice as much as at the beginning of the decade and illustrates the substantial development of this market segment, which, despite some improvement, remains one of the most fragmented among euro area financial markets. During the past decade, monetary financial institutions tended to be, by far, the most important issuer, representing more than half of total

Lower relative importance of short-term debt securities...

**Table 2.6 Amounts outstanding of euro-denominated short-term debt securities issued by euro area residents**

(end of year; EUR billions; (percentage of GDP))

	1995	2000	2005	2007	2008	2009
Monetary financial institutions	111 (2.0)	315 (4.7)	482 (5.9)	788 (8.7)	822 (8.9)	733 (8.2)
Non-monetary financial institutions	4 (0.1)	6 (0.1)	19 (0.2)	37 (0.4)	66 (0.7)	75 (0.8)
Non-financial corporations	45 (0.8)	90 (1.3)	79 (1.0)	100 (1.1)	116 (1.2)	71 (0.8)
Public sector	322 (5.8)	254 (3.8)	367 (4.5)	363 (4.0)	591 (6.4)	746 (8.3)
Total	482 (8.7)	665 (9.8)	947 (11.6)	1,287 (14.3)	1,595 (17.2)	1,625 (18.1)

Source: ECB.

issuance. In the aftermath of the financial crisis, and as short-term public financing needs became more acute, the government sector's share of issuance rose again, reaching nearly half of the total issuance by the end of 2009.

...when compared with long-term debt securities

Euro-denominated long-term debt securities represented about 90% of overall debt securities issued by euro area residents during the past decade. Unlike for short-term maturities, the amount outstanding of these debt instruments continued to increase throughout the recent financial turmoil,

amounting to €13,677 billion at the end of 2009, i.e. 152.5% of GDP – compared with 97.6% ten years earlier (see Table 2.7). The public sector (i.e. central government and other general government) is the most important long-term debt issuer in terms of volume, although the share of the MFI sector increased rapidly during the second half of the previous decade. More recently, against the background of the financial turmoil, the relative importance of long-term debt securities issued by MFIs decreased somewhat. By contrast, that of non-monetary financial institutions grew noticeably,

**Table 2.7 Amounts outstanding of euro-denominated long-term debt securities issued by euro area residents**

(end of year; EUR billions; (percentage of GDP))

	1995	2000	2005	2007	2008	2009
Monetary financial institutions	1,012 (18.2)	2,462 (36.3)	3,629 (44.6)	4,261 (47.3)	4,450 (48.1)	4,646 (51.8)
Non-monetary financial institutions	76 (1.4)	370 (5.5)	934 (11.5)	1,467 (16.3)	2,104 (22.7)	3,151 (35.1)
Non-financial corporations	173 (3.1)	341 (5.0)	508 (6.2)	556 (6.2)	593 (6.4)	743 (8.3)
Public sector	1,162 (20.9)	3,402 (50.2)	4,266 (52.4)	4,497 (49.9)	4,687 (50.6)	5,137 (57.3)
Total	2,424 (43.6)	6,575 (97.0)	9,337 (114.6)	10,782 (119.7)	11,834 (127.8)	13,677 (152.5)

Source: ECB.

reflecting the use of securitisation by bank-sponsored special-purpose vehicles. Comparatively, the issuance of debt securities by non-financial corporations in the euro area did not increase much during most of the past decade, rising from 6.2% of GDP before the financial turmoil to 8.3% by the end of 2009. While this could be mainly explained by substantial improvements in firms' funding conditions in the capital market, it could also partly reflect the deterioration of the availability of bank financing through a tightening of terms and conditions on bank loans during the financial turmoil.

Debt securities' financing in the euro area is low compared with the United States

The issuance of debt securities remains lower in the euro area than in the United States and Japan. The amounts outstanding at the end of 2009 were 155% of GDP in the euro area, compared with 176% and 225% of GDP in the United States and Japan respectively (see Table 2.8). The high figure in Japan can be explained by the size of the government bond market, which is more than twice that of the United States or the euro area. The use of debt financing in the form of securities issuance by euro area non-financial corporations represents a significantly smaller percentage of GDP than in both the United States and Japan. At the end of 2009, the amount outstanding of debt securities issued by the non-financial corporate sector in the euro area was around 8% of GDP,

compared with 19.5% and 15.3% of GDP in the United States and Japan respectively.

Despite the significant ongoing growth of the euro area debt securities market, some market segments, such as those for debt with a low credit rating or unrated debt, remain relatively underdeveloped. Compared with the United States, fewer euro area non-financial corporations have credit ratings, which restricts their access to the corporate bond market.

Some segments in euro area debt securities market little developed

### Equity market

Turning to the equity market, a commonly used indicator of its importance is the market capitalisation of stocks traded in terms of GDP. Euro area stock market capitalisation increased from 21% of GDP at the end of 1990 to 56% of GDP at the end of 2009, peaking twice at around 85% in the last two decades (at the end of 2000 and 2007), but dropping sharply to a historical low of 38% at the end of 2008 (see Table 2.9). High volatility and sharp declines in stock prices around the world, in the wake of a number of events that have reshaped the entire financial landscape and deteriorating global macroeconomic conditions, have strongly depressed equity prices and led to the fall in stock market capitalisation. By contrast, 2009 was characterised by an impressive rebound in equity prices globally. This was spurred by returning

Euro area stock market capitalisation growing...

**Table 2.8 Amounts outstanding for debt securities denominated in national currency issued by residents in the euro area, the United States and Japan at the end of 2009**

(as a percentage of GDP)

	Total	Issued by financial corporations	Issued by non-financial corporations	Issued by general government
Euro area	154.6	81.8	7.8	64.9
United States	175.8	89.8	19.5	66.5
Japan	224.8	21.1	15.3	188.2

Sources: ECB and BIS.

**Table 2.9 Stock market capitalisation in the euro area, the United States and Japan**

(end of year; as a percentage of GDP)

	1990	1995	1998	2000	2002	2006	2007	2008	2009
Euro area	21	27	63	86	50	80	84	38	55
United States	54	93	144	153	104	146	142	81	106
Japan	97	67	63	68	53	106	99	64	65

Source: World Federation of Exchanges.

confidence and decreasing risk aversion among investors, for which the large-scale support measures of governments and central banks were an important driving force. Compared with levels at the end of 2008, major stock market indices in the euro area, the United States and Japan increased by around 17, 24 and 1 percentage point(s), amounting to 55%, 106% and 65% of GDP respectively.

listed companies. In the euro area, this number grew from 4,276 at the end of 1990 to 6,445 by the end of 2009 (see Table 2.10). By means of comparison, the number of listed companies in the United States and Japan at the end of 2009 was 5,179 and 2,335 respectively.

Since the introduction of the euro, there have been many initiatives to form alliances or merge the activities of stock exchanges of individual euro area countries. Stock market participants also increasingly seem to be taking into account the economic factors common to the euro area as a whole. The very large oscillations in equity prices in recent times do not seem to have had an appreciable impact on the degree of cross-border integration of European equity markets. Between 2001 and 2007, euro area investors increased their holdings of equity issued in other euro area countries from 22% to 33% of their total portfolio of euro area equity assets. Moreover, in 2008 this share further increased very substantially

**Increasing integration of euro area stock markets**

**... but lower than in the United States**

Total stock market capitalisation in the euro area remained significantly lower than in the United States, and the gap between stock market capitalisation in terms of GDP in the United States and that in the euro area even widened, from around 30 percentage points in 1990 to around 50 percentage points in 2009. By contrast, in Japan stock market capitalisation declined from 97% of GDP in 1990 to 65% of GDP in 2009, peaking at 106% of GDP in 2006.

**Growing number of companies listed on euro area stock markets**

Another indication of the growing importance of the equity market is provided by statistics on the number of

**Table 2.10 Number of domestic and foreign companies listed on stock markets in the euro area, the United States and Japan**

(end of year)

	1990	1995	1998	2000	2002	2006	2007	2008	2009
Euro area	4,276	5,106	4,546	5,516	6,651	6,392	6,601	6,686	6,445
United States	6,765	8,160	8,461	7,851	6,586	6,005	5,965	5,472	5,179
Japan	1,752	1,791	1,890	2,096	2,153	2,416	2,414	2,390	2,335

Source: World Federation of Exchanges.

to 38%. Notwithstanding, since 2001, the share of euro area equity assets held outside the euro area has remained at a much lower level and increased only marginally. The reallocation out of domestic equity and into equity issued elsewhere in the euro area was also due to the contribution of institutional investors. The percentage of investment funds' total holdings of all shares and other equity (excluding investment fund shares/units) issued by residents of the euro area outside the Member State in which the investment fund is located actually increased from 17% in 1998 to around 25% by the end of 2009. The recent financial turmoil has only slightly affected the allocation of euro area investment.

## 2.7 FINANCIAL INTERMEDIARIES

### Credit institutions and other monetary financial institutions

There are two broad categories of financial intermediaries: monetary financial institutions (MFIs) and other financial intermediaries (OFIs). MFIs comprise the Eurosystem (the ECB and the NCBs of those countries that have adopted the euro), credit institutions and non-credit institutions (mainly money market funds) whose business is to receive deposits from entities other than MFIs and to grant credit and/or invest

in securities. The vast majority of euro area MFIs are credit institutions (i.e. commercial banks, savings banks, cooperative banks, postbanks, specialised credit institutions, etc). They are clearly defined in two banking coordination directives<sup>7</sup> and are subject to common EU-wide supervisory standards. Credit institutions are the counterparties for central bank monetary policy operations (see Chapter 4). Since they grant credit to households and firms, notably on the basis of credit received from the central bank, they are crucial to the transmission of monetary policy decisions to the economy (see Chapter 3).

At the end of 2010, there were 6,334 credit institutions resident in the euro area, representing 80% of all euro area MFIs (see Table 2.11). With 1,474 institutions, money market funds accounted for most of the remaining 20%. Despite the enlargement of the euro area with the accession of Greece (2001), Slovenia (2007), Cyprus and Malta (2008), Slovakia (2009) and Estonia (2011), the number of MFIs in the euro area has decreased by nearly 20% since the introduction of the euro. This reflects an ongoing consolidation process in the European banking industry. The trend towards consolidation in the credit institution sector is a response to changing market conditions

Number of MFIs declined owing to financial consolidation

Definition of credit institutions and MFIs

<sup>7</sup> The term "credit institution" is used to refer to any institution falling under the definition contained in Banking Coordination Directives 77/780/EEC of 12 December 1977 and 89/646/EEC of 30 December 1989, i.e. "an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credit for its own account".

Table 2.11 Number of euro area monetary financial institutions

(end of year)	2000	2004	2008	2010
Credit institutions	7,521	6,406	6,570	6,334
Money market funds	1,651	1,670	1,721	1,474
Central banks and other institutions	21	19	19	20
All MFIs	9,193	8,095	8,310	7,828

Source: ECB.

driven by a number of factors, such as technological developments, deregulation, liberalisation and globalisation. The introduction of the euro has probably been fuelling these developments by creating more transparency across national borders. Germany and France accounted for 41.1% of all euro area MFIs, a share broadly unchanged from that recorded when the euro was introduced.

integration of financial systems and the importance of the interbank market. The consolidated balance sheet of the MFI sector is obtained by netting positions between MFIs in the euro area on the aggregated balance sheet. The consolidated balance sheet provides the basis for the regular analysis of monetary and credit developments in the euro area, including monetary aggregates (see Box 2.3).

**Aggregated and consolidated balance sheet of MFIs**

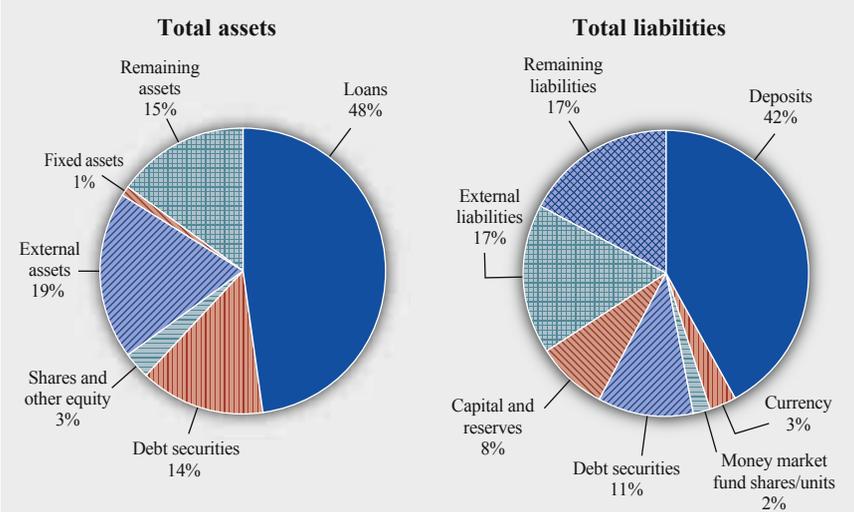
The ECB and the NCBs collect monthly and quarterly statistics from the MFIs in the euro area and compute both an aggregated and a consolidated MFI balance sheet at the euro area level. The aggregated balance sheet of the MFI sector is the sum of the harmonised balance sheets of all the MFIs resident in the euro area. The aggregated balance sheet presents information on inter-MFI positions on a gross basis. It includes cross-border inter-MFI activities both within the euro area and vis-à-vis the rest of the world. This information is useful for assessing the

**Deposits and loans are the most important MFI balance sheet items**

Chart 2.4 shows the composition of the consolidated balance sheet of euro area MFIs including the Eurosystem at the end of 2010. Deposits accounted for 42% of total liabilities, while other important liability items were external liabilities and debt securities, which accounted for 17% and 11% respectively of total MFI liabilities. Loans represented the largest share of total assets (48% at the end of 2010). External assets made up 19% of total MFI assets, whereas lending in the form of debt securities, shares and other equity accounted for 14% and 3% respectively.

**Chart 2.4 Composition of the consolidated balance sheet of euro area MFIs (including the Eurosystem) at the end of 2010**

(percentage of the balance sheet total)



Source: ECB.

### Box 2.3 Monetary aggregates

The starting point for the definition of euro area monetary aggregates is the consolidated balance sheet of the MFI sector. In general, the appropriate definition of a monetary aggregate largely depends on the purpose for which the aggregate is intended. Given that many different financial assets are substitutable and that the nature and characteristics of financial assets, transactions and means of payment change over time, it is not always clear how money should be defined and which financial assets belong to which definition of money. For these reasons, central banks usually define and monitor several monetary aggregates.

The ECB's definitions of euro area monetary aggregates are based on a harmonised definition of the money-issuing sector and the money-holding sector, as well as of harmonised categories of MFI liabilities. The money-issuing sector comprises MFIs resident in the euro area. The money-holding sector includes all non-MFIs resident in the euro area excluding the central government sector.<sup>1</sup>

Based on conceptual considerations and empirical studies, and in line with international practice, the Eurosystem has defined a narrow (M1), an "intermediate" (M2) and a broad monetary aggregate (M3). These aggregates differ with regard to the degree of liquidity (as assessed on the basis of the criteria of transferability, convertibility, price certainty and marketability) of the assets they include.

Table 2.12 sets out the definitions of euro area monetary aggregates. M1 comprises currency in circulation and overnight deposits, which can be immediately converted into currency or used for cashless payments. M2 includes, in addition, deposits that can be converted into components of narrow money, although some restrictions may apply, such as the need for advance notification, penalties and fees. Finally, M3 comprises M2 and certain marketable instruments issued by the resident MFI sector. A high degree of liquidity and price certainty make these instruments close substitutes for deposits. As a result of their inclusion, broad money is less affected by substitution between various liquid asset categories than narrower definitions of money and is more stable (see also Chapter 3).

<sup>1</sup> Even though the central government sector is not considered to be part of the money-issuing sector, central government liabilities of a monetary nature (e.g. deposits held by households with the post office) are included as a special item in the definition of monetary aggregates because they are highly liquid.

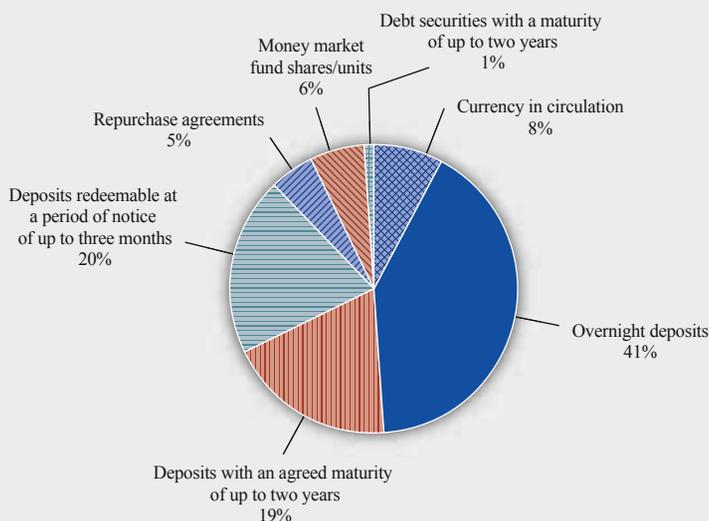
**Table 2.12 Definitions of euro area monetary aggregates**

Liabilities <sup>1)</sup>	M1	M2	M3
Currency in circulation	x	x	x
Overnight deposits	x	x	x
Deposits with an agreed maturity of up to 2 years		x	x
Deposits redeemable at notice of up to 3 months		x	x
Repurchase agreements			x
Money market fund shares/units			x
Debt securities issued with a maturity of up to 2 years			x

Source: ECB.

1) Monetary liabilities of MFIs and central government (post office, treasury) vis-à-vis non-MFI euro area residents excluding central government.

**Chart 2.5 Percentage shares of components of M3 at the end of 2010**



Source: ECB.

Holdings by euro area residents of liquid assets denominated in foreign currencies can be close substitutes for euro-denominated assets. Therefore, the monetary aggregates include such assets if they are held with MFIs located in the euro area.

As the definition of monetary aggregates adopted by the ECB only includes liabilities of MFIs located in the euro area vis-à-vis euro area residents, holdings by foreign residents of: i) short-term deposits with euro area MFIs; ii) shares/units issued by money market funds located in the euro area; and iii) debt securities issued with a maturity of up to two years by MFIs located in the euro area are excluded. Currency in circulation is included in its entirety in the monetary aggregates, irrespective of whether it is held by euro area residents or non-residents, given the difficulty of deriving accurate and timely measures of the amounts of banknotes and coins held by non-residents.

Chart 2.5 illustrates the relative shares of the components of M3 in December 2010. Overnight deposits accounted for the largest share, namely 41% of M3. The share in M3 of deposits with an agreed maturity of up to two years was 19%, while that of deposits redeemable at a period of notice of up to three months was 20%. Currency in circulation amounted to 8% of M3 and money market fund shares/units accounted for 6%. Finally, repurchase agreements and debt securities issued with an initial maturity of up to two years accounted for 5% and 1% of M3 respectively.

**Bank deposits and loans in the euro area, the United States and Japan**

Bank deposits in the euro area amounted to 132% of GDP at the end of 2009 (see Table 2.13). This was more than in the United States (64% of GDP) and less than in Japan (215% of GDP). At the same time, bank loans in the euro area totalled 142% of GDP, while

for the United States and Japan this ratio was 56% and 145% respectively. These figures are an indication of the importance of financial intermediation through banks in the euro area, particularly when compared with the United States. In both the euro area and

**Table 2.13 Bank deposits and loans in the euro area, the United States and Japan at the end of 2009**

(as a percentage of GDP)

	<b>Bank deposit liabilities<sup>1)</sup></b>	<b>Bank loans</b>	<b>Bank loans to non-financial corporations</b>
Euro area	131.9	141.5	52.4
United States <sup>2)</sup>	63.7	55.6	22.0
Japan	215.2	145.3	47.4

Sources: Euro area accounts (ECB); Flow of Funds (US Federal Reserve System); Financial Accounts (Bank of Japan).

1) Consolidated (i.e. excluding estimated intra bank deposits).

2) US banks comprise commercial banks, savings institutions and credit unions.

Japan, bank loans to non-financial corporations were around 50% of GDP at the end of 2009. By contrast, in the United States they amounted to 22% of GDP. This reflects the significance of capital markets in corporate finance decisions in the euro area and Japan, whereas US non-financial businesses generally rely to a much larger extent on non-bank sources of financing.

### Other financial intermediaries

Those financial intermediaries that fall into the category of OFIs also provide financial services to households and non-financial corporations and/or trade in financial markets on their own behalf. Other financial intermediaries include insurance corporations, pension funds, financial auxiliaries, mutual funds, securities and derivatives dealers, and financial corporations engaged in lending. The OFI sector also includes institutions created by MFIs to facilitate the securitisation of loans that would otherwise be held on the MFI balance sheet. The key difference between OFIs and MFIs is that the latter can take deposits from the public, while OFIs are financed by other means, e.g. by issuing securities. OFIs are subject to less stringent regulatory requirements and may therefore adopt financial

innovations faster than MFIs. Like MFIs, OFIs are part of the money-holding sector and any expansion in their balance sheet leads automatically to expansion in the MFIs' balance sheets. In line with financial liberalisation and innovation, the total amount of assets held by investment funds increased substantially between 2003 and 2007, growing from around 50% of GDP in 2003 to 60% at the beginning of 2007. As a result of the financial crisis, however, this amount had shrunk back to a level equivalent to 51% of euro area GDP by the end of 2009. This remains comparatively much less than the relative importance of assets of MFIs, which accounted for 269% of euro area GDP at the end of 2009.

## 2.8 ECONOMIC DIVERSITY

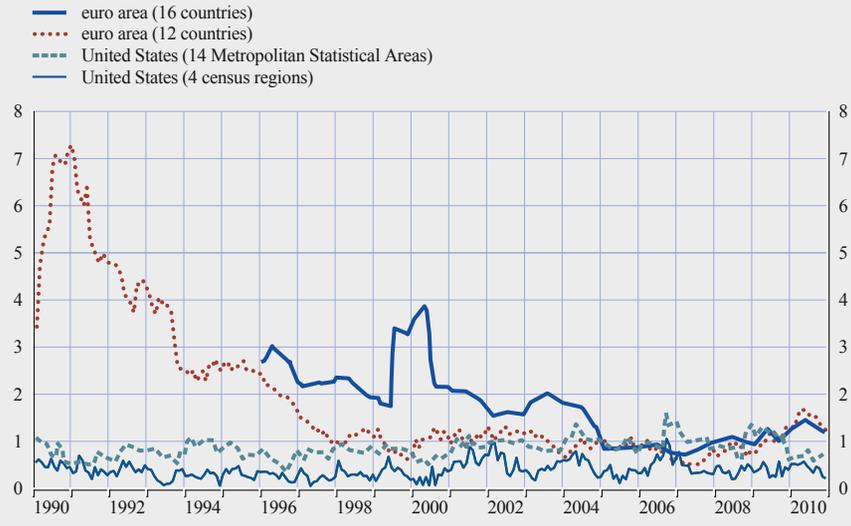
Inflation and output growth differentials between the countries of the euro area are moderate and broadly in line with other large currency areas such as the United States. Such differentials may result from differences in demographic trends, long-term catching-up processes, or ongoing adjustments leading to a more efficient allocation of resources. However, the persistence of inflation and growth differentials of individual

Other financial intermediaries have gained considerable importance over the last few years

Moderate inflation and output growth differentials in the euro area

## Chart 2.6 Dispersion of annual inflation across euro area countries and the United States

(unweighted standard deviation in percentage points)



Sources: Eurostat and US Bureau of Labor Statistics.

euro area countries over longer periods of time, if induced by structural inefficiencies or misaligned national policies, may be worrisome and would need to be addressed by national policy adjustments. In order to better gauge the impact of euro area enlargement on available indicators for dispersion, in the following heterogeneity is illustrated for the 12 countries that introduced euro banknotes and coins in 2002 and for the 16 countries that made up the euro area in 2010.

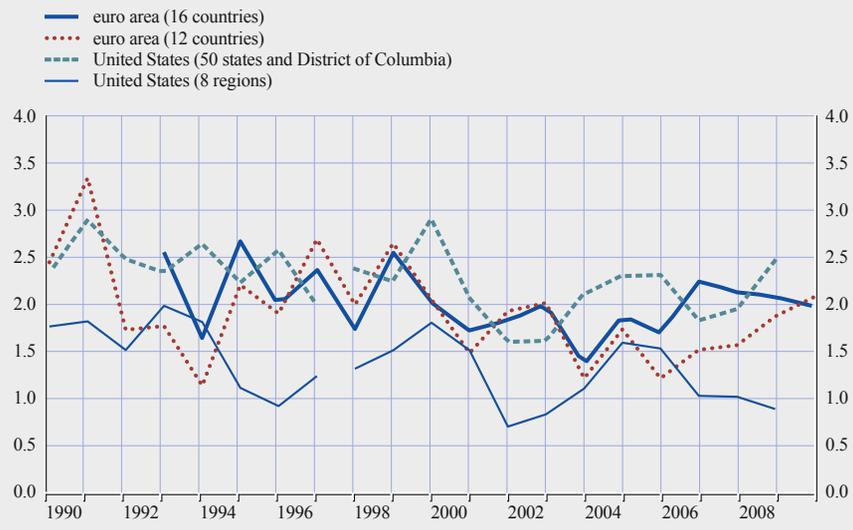
and the first months of 2010, dispersion of inflation in the euro area increased somewhat, reflecting differences across countries in the extent and timing of the impact of the economic recession and recovery, as well as the fiscal policy response (including indirect tax increases). The rise highlights the need for domestic economic policy adjustments to tackle previously accumulated imbalances at a national level, which have started to be implemented. In the second half of 2010 inflation dispersion in the euro area declined and (at the beginning of 2011) stood close to its average over the past decade. When it includes Slovenia (a member of the euro area since 2007), Cyprus and Malta (members since 2008) and Slovakia (a member since 2009), the dispersion level of the 16 euro area countries gradually converges towards that of the 12 euro area countries. The caveats for

### Dispersion of annual inflation

Chart 2.6 presents the dispersion of inflation across the euro area and the United States, based on the unweighted standard deviation. The curve for the 12 euro area countries shows a broadly stable dispersion of HICP inflation since the late 1990s, at a level similar to that of the 14 US Metropolitan Statistical Areas, but higher than that of the four US census regions. In 2009

**Chart 2.7 Dispersion of real GDP growth across euro area countries and the United States<sup>1)</sup>**

(unweighted standard deviation; percentage points)



Sources: European Commission's autumn 2010 forecast and US Bureau of Economic Analysis (BEA).

1) There is a statistical break in the US regional data in 1998. For the US states and regions, the data refer to GDP by state. The eight regions are defined by the BEA and cover the whole country. Data for Slovakia start in 1992.

making such comparisons relate to the comparability of the (unharmonised) data and geographical entities.

euro area growth dispersion has been broadly similar to that of the US states. Again, the caveats for making such comparisons relate to the comparability of the (unharmonised) data and geographical entities.

**Dispersion of real GDP growth**

With regard to real GDP growth, Chart 2.7 shows the dispersion of output growth across the euro area and the United States, based on the unweighted standard deviation. The line for the 12 euro area countries shows a broadly stable dispersion of output growth for the 1990s, which declined somewhat thereafter. More recently, growth dispersion increased moderately, returning to levels seen in the early 2000s. When it includes Slovenia, Cyprus, Malta and Slovakia, the dispersion for the 16 euro area countries has been very similar to the dispersion for the 12 euro area countries since 1994, although in recent years the dispersion across the 16 euro area countries has exceeded that for the 12 euro area countries. As can be seen,

## 3 THE ECB'S MONETARY POLICY STRATEGY

This chapter describes the monetary policy strategy of the European Central Bank (ECB), i.e. the ECB's general approach to achieving its primary objective of maintaining price stability. The first section focuses on the reasons underlying the assignment of this objective to monetary policy. The second section summarises the key features of the monetary policy transmission mechanism (i.e. the way in which monetary policy influences price developments) and discusses their implications for the conduct of monetary policy. The sections that follow explain the central elements of the ECB's strategy in greater detail. The final section describes how the ECB's monetary policy strategy guided policy choices during the global financial crisis.

### 3.1 THE ROLE OF MONETARY POLICY AND THE BENEFITS OF PRICE STABILITY

#### What monetary policy can and what it cannot do

By controlling the supply of the monetary base...

The way in which monetary policy exerts its influence on the economy can be explained as follows. The central bank is the sole issuer of banknotes and bank reserves, i.e. it is the monopoly supplier of the monetary base. By virtue of this monopoly, the central bank is able to influence money market conditions and steer short-term interest rates.

...the central bank can influence economic developments

In the short run, a change in money market interest rates induced by the central bank sets in motion a number of mechanisms and actions by economic agents, ultimately influencing developments in economic variables such as output or prices. This process – also known as the monetary policy transmission mechanism – is complex and, while its broad features are understood, there is no unique and undisputed view of all the aspects involved.

In the long run, changes in the money supply will affect the general price level...

The neutrality of money is a widely accepted and empirically validated proposition in the economic profession. In the long run, i.e. after all adjustments in the economy have worked through,

a change in the quantity of money in the economy (all other things being equal) will be reflected in a change in the general level of prices and will not induce permanent changes in real variables such as real output or employment. A change in the quantity of money in circulation ultimately represents a change in the unit of account (and thereby the general price level) which leaves all other variables unchanged.

...but not the level of real income or employment

This general principle, referred to as “the long-run neutrality” of money, underlies all standard macroeconomic thinking and theoretical frameworks. Real income or the level of employment in the economy are, in the long run, essentially determined by real (supply-side) factors. These are technology, population growth, the preferences of economic agents and all aspects of the institutional framework of the economy (notably property rights, tax policy, welfare policies and other regulations determining the flexibility of markets and incentives to supply labour and capital and to invest in human capital).

In the long run, the central bank cannot influence economic growth by changing the money supply. Related to this is the

Inflation is ultimately a monetary phenomenon

assertion that inflation is ultimately a monetary phenomenon. Indeed, prolonged periods of high inflation are typically associated with high monetary growth. While other factors (such as variations in aggregate demand, technological changes or commodity price shocks) can influence price developments over shorter horizons, over time their effects can be offset by some degree of adjustment of the money stock. In this sense, the longer-term trends of prices or inflation can be controlled by the central bank.

Price stability enhances the potential for economic growth

The close association between the growth of money and inflation in the economy and the long-run neutrality of monetary policy have been confirmed by a very large number of economic studies, covering various periods and countries. Both empirical and theoretical research has confirmed that the costs of inflation and deflation are substantial. In a regime of price stability, however, these costs are small and more difficult to discern empirically. Consequently, it is widely acknowledged today that price stability contributes to increasing economic welfare and the growth potential of an economy.

### The benefits of price stability

Price stability supports higher living standards by...

The objective of price stability refers to the general level of prices in the economy and implies avoiding both prolonged inflation and deflation. There are several ways in which price stability contributes to achieving high levels of economic activity and employment.

...improving the transparency of relative prices,...

First, price stability makes it easier for people to disentangle changes in relative prices (i.e. movements in prices of any individual good or service) from changes in the general price level. In such an environment, people know that movements in prices typically mirror

changes in the “relative scarcity” of the individual goods and services which result from changes in the supply of, and demand for, these goods and services. This allows the market to allocate resources more efficiently. By helping the market to guide resources to where they can be used most productively, price stability increases the welfare of households and thus the productive potential of the economy.

Second, if creditors can be sure that prices will remain stable in the future, they will not demand an “inflation risk premium” to compensate them for the risks associated with holding nominal assets over the longer term. By reducing such risk premia in the real interest rate, monetary policy credibility contributes to the efficiency with which the capital markets allocate resources and thus increases the incentives to invest. This in turn fosters economic welfare.

...reducing inflation risk premia in interest rates,...

Third, the credible maintenance of price stability also makes it less likely that individuals and firms will divert resources from productive uses in order to hedge against inflation. For example, in a high-inflation environment there is an incentive to stockpile real goods since they retain their value better in such circumstances than money or certain financial assets. However, stockpiling goods is not an efficient investment decision, and therefore hinders economic growth.

...avoiding unnecessary hedging activities,...

Fourth, tax and welfare systems can create perverse incentives which distort economic behaviour. In most cases, these distortions are exacerbated by inflation or deflation, as fiscal systems do not normally allow for the indexation of tax rates and social

...reducing distortions of tax systems and social security systems,...

security contributions to the inflation rate. Price stability eliminates the real costs entailed when inflation exacerbates the distortionary impact of tax and social security systems.

...increasing the benefits of holding cash,...

Fifth, inflation acts as a tax on holdings of cash. In an inflationary environment, households have an incentive not to use cash as often in order to reduce transaction costs. These so-called “shoe-leather” costs arise because individuals have to visit the bank (or cash machine) more frequently to withdraw banknotes.

...preventing the arbitrary redistribution of wealth and income...

Sixth, maintaining price stability prevents the considerable and arbitrary redistribution of wealth and income that arises in inflationary as well as deflationary environments, where price trends change in unpredictable ways (e.g. redistribution effects from creditors to debtors). Typically, the weakest groups of society often suffer the most from inflation, as they have only limited possibilities for hedging against it. An environment of stable prices thus helps to maintain social cohesion and stability. As several examples in the twentieth century have demonstrated, high rates of inflation or deflation often create social and political instability.

...and contributing to financial stability

Seventh, sudden revaluations of financial assets may undermine the soundness of the banking sector’s balance sheets and decrease households’ and firms’ wealth. By contrast, if monetary policy succeeds in maintaining price stability in a credible manner, inflationary as well as deflationary shocks to the real value of nominal assets can be avoided. In this way, monetary policy aimed at price stability provides an important contribution to financial stability.

All these arguments suggest that a central bank that maintains price stability makes a substantial contribution to the achievement of broader economic goals, such as higher standards of living, high levels of economic activity and better employment prospects. This is in line with a host of empirical studies for a wide range of countries which point to the existence of a negative relationship between inflation and growth. A permanent rise in inflation outweighs any short-term gain in nominal income, and eventually causes real income to decline permanently.

By maintaining price stability the central bank contributes to broader economic goals

### Assignments of the Treaties

The basic and widely shared principles outlined above are reflected in the sound allocation of objectives and responsibilities to the different policy-making authorities in European Monetary Union (EMU) (see Chapter 1). The primary objective of the Eurosystem, and of the single monetary policy for which it is responsible, is specified by the Treaty on the Functioning of the European Union as the maintenance of price stability. Moreover, and “without prejudice to the objective of price stability”, the Eurosystem shall also “support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union” which include, inter alia, “full employment” and “balanced economic growth”.

The provisions of the Treaties reflect these general principles...

The institutional framework is founded on the principle that the Eurosystem’s objective of maintaining price stability is of overriding importance. Since monetary policy can ultimately only influence the price level in the economy, price stability is the best contribution that a central bank can make to economic welfare and to the long-term

...by setting price stability as the primary objective of monetary policy

growth prospects of the economy. By ensuring lasting conditions of price stability, the central bank promotes a steady course of economic development over longer horizons, encourages capital formation, and hence contributes indirectly to income growth. Assigning monetary policy an objective for real income or employment would have been sub-optimal, since monetary policy has no scope for exerting any lasting influence on real variables in the short to medium term. This can be explained on the basis of two considerations. First, a central bank has only one instrument at its disposal in the pursuit of its mandate. Second, it is the task of other economic policy-makers, notably those responsible for fiscal and structural policies, to smooth real economic activity in the short term and to directly enhance the growth potential of the economy. The clear hierarchy of objectives on which the Eurosystem is founded reflects decades of practical experience and numerous economic studies which suggest that monetary policy will contribute most to improving economic prospects and raising the living standards of citizens by maintaining price stability in a lasting way.

### 3.2 THE TRANSMISSION MECHANISM OF MONETARY POLICY

#### The transmission mechanism and its channels

The process through which monetary policy decisions affect the economy in general, and the price level in particular, is known as the transmission mechanism of monetary policy. The transmission of monetary impulses to the real sector involves a number of different mechanisms and actions by economic agents at various stages of the process. As a result, monetary

policy action usually takes a considerable time to affect price developments. Furthermore, the size and strength of the different effects can vary according to the state of the economy, which makes the precise impact difficult to estimate. Taken together, central banks typically see themselves confronted with long, variable and uncertain lags in the conduct of monetary policy.

Identifying the transmission mechanism of monetary policy is complicated by the fact that, in practice, economic developments are continuously influenced by shocks from a wide variety of sources. For instance, changes in oil or other commodity prices or in administered prices can have a short-term, direct impact on inflation. Similarly, developments in the world economy or in fiscal policies may influence aggregate demand and thereby price developments. Furthermore, financial asset prices and exchange rates depend on many other factors in addition to monetary policy. Monetary policy must therefore monitor the transmission chain to avoid that exogenous shocks to the financial structure interfere with the transmission of monetary impulses. It should also take into account all other developments relevant for future inflation in order to prevent these having an impact on longer-term inflation trends and expectations in a way that is inconsistent with price stability. The required path of monetary policy is therefore always dependent on the nature, size and duration of the shocks hitting the economy. It is an ongoing challenge for the central bank to identify the factors driving price trends in order to apply the appropriate monetary policy reaction.

...and is influenced by exogenous shocks

The transmission is characterised by long, variable and uncertain time lags...

**Several channels of transmission**

Several transmission channels – the individual links through which monetary policy impulses are (typically) transferred to the real economy – may be involved at the same time, and have separate influences on price developments. Central banks are faced with a complex web of economic interactions. The main channels of monetary policy transmission can be presented in a schematic form (see the left-hand side of Chart 3.1).

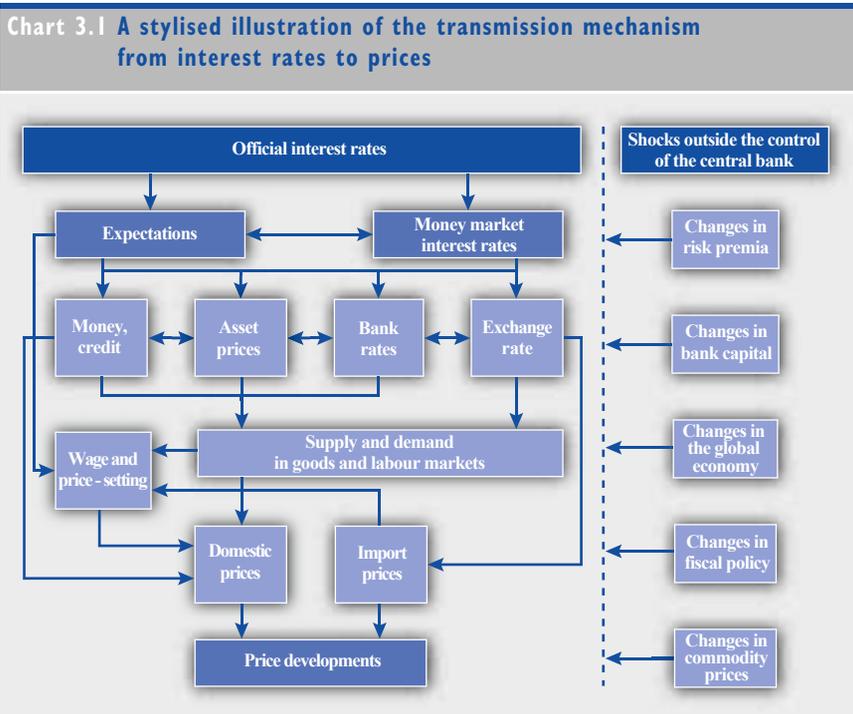
bank (known as “base money”) to meet the public demand for currency, to clear interbank balances and to meet the requirements for minimum reserves that must be deposited with the central bank. Given its monopoly over the creation of base money, the central bank can control the interest rates on its operations. Since the central bank thereby affects the funding cost of liquidity for banks, banks need to pass on these costs when lending to their customers (“interest rate channel”).

**A change in official interest rates...**

The (long) chain of cause and effect linking monetary policy decisions with the price level starts with a change in the official interest rates set by the central bank on its own operations. In these operations, the central bank typically provides funds to banks (see Chapter 4 for a detailed description of the Eurosystem’s monetary policy instruments). The banking system demands money issued by the central

Through this process, the central bank can exert a dominant influence on money market conditions and thereby steer money market interest rates. Changes in money market rates in turn affect other interest rates, albeit to varying degrees. For example, changes in money market rates have an impact on the interest rates set by banks on short-term loans and deposits.

**...directly affects market interest rates,...**



...affects expectations,...

In addition, expectations of future official interest rate changes affect longer-term market interest rates, since these reflect expectations of the future evolution of short-term interest rates. However, the impact of money market rate changes on interest rates at very long maturities (e.g. ten-year government bond yields, long-term bank lending rates) is less direct. Those rates depend to a large extent on market expectations for long-term growth and inflation trends in the economy. In other words, changes in the central bank's official rates do not normally affect these longer-term rates unless they were to lead to a change in market expectations concerning long-term economic trends. Monetary policy can also guide economic agents' expectations of future inflation and thus influence price developments (see Chart 3.1).

...affects saving and investment decisions,...

Changes in interest rates affect the saving, spending and investment decisions of households and firms. For example, all other things being equal, higher interest rates tend to make it less attractive for households or companies to take out loans in order to finance their consumption or investment. Higher interest rates also make it more attractive for households to save their current income rather than spend it, since the return on their savings is increased.

...leads to a change in aggregate demand and prices,...

As a consequence of changes in consumption and investment, the level of domestic demand for goods and services relative to domestic supply will change. When demand exceeds supply, all other things being equal, upward pressure on prices is likely to result. Moreover, changes in aggregate demand may translate into tighter or looser conditions in labour and intermediate product markets, and these

in turn can affect price and wage-setting in the respective market.

Because of their impact on financing conditions in the economy and on expectations, monetary policy decisions can affect other financial variables such as asset prices (e.g. stock market prices) and exchange rates. Changes in the exchange rate can affect inflation directly, insofar as imported goods are part of the consumption basket, but they may also work through other channels (see Chart 3.1). Changes in other asset prices typically affect inflation indirectly, to the extent that wealth effects impact on the private sector's consumption decisions. They may also have implications for financial stability when protracted asset price bubbles suddenly burst. Boom-bust cycles in asset prices are often associated with periods of prolonged loose monetary policy.

...affects asset prices,...

Furthermore, changes in official interest rates may also affect the supply of credit ("credit channel"). Following an increase in interest rates, the risk that some borrowers cannot safely pay back their loans may increase to a level such that the bank will not grant a loan to these borrowers (the "bank lending channel" of the credit channel). As a consequence, such borrowers, households or firms are forced to postpone their consumption or investment plans. Interest rate changes also affect firms' balance sheets. An increase in interest rates leads to a lower net worth of firms which means a lower collateral value and thus a reduced ability to borrow (the "balance sheet channel" of the credit channel).

...affects the supply of credit,...

In addition to the traditional bank lending channel, which focuses on the quantity of loans supplied, a "risk-taking channel" may exist when banks'

...and may affect the overall risk-taking behaviour of the economy

incentive to bear risk related to the provision of loans is affected. The risk-taking channel is thought to operate mainly via two mechanisms. First, low interest rates boost asset and collateral values. This, in conjunction with the belief that the increase in asset values is sustainable, leads both borrowers and banks to accept higher risks. Second, low interest rates make riskier assets more attractive, as agents search for higher yields. In the case of banks, these two effects usually translate into a softening of credit standards, which can lead to an excessive increase in loan supply.

#### The exchange rate channel

Changes in the exchange rate will normally affect inflation in three ways. First, exchange rate movements may directly affect the domestic price of imported goods. If the exchange rate appreciates, the price of imported goods tends to fall, thus helping to reduce inflation directly, insofar as these products are directly used in consumption. Second, if these imports are used as inputs into the production process, lower prices for inputs might, over time, feed through into lower prices for final goods. Third, exchange rate developments may also have an effect via their impact on the competitiveness of domestically produced goods on international markets. If an appreciation in the exchange rate makes domestically produced goods less competitive in terms of their price on world markets, this tends to constrain external demand and thus reduce overall demand pressure in the economy. All other things being equal, an appreciation of the exchange rate would thus tend to reduce inflationary pressures. The strength of exchange rate effects depends on how open the economy is to international trade. Exchange rate

effects are in general less important for large economies than for small open economies. Furthermore, financial asset prices like the exchange rate depend on many other factors in addition to monetary policy.

The expectations channel mainly works by influencing the private sector's longer-term expectations. It has gained particular relevance for the conduct of monetary policy over past decades. Its effectiveness crucially depends on the credibility of central bank communication which primarily rests on a sound monetary policy framework. For instance, if a central bank enjoys a high degree of credibility in pursuing its objective, monetary policy can exert a powerful direct influence on price developments by guiding economic agents' expectations of future inflation and thereby influencing their wage and price-setting behaviour. The credibility of a central bank to maintain price stability in a lasting manner is crucial in this respect. If economic agents believe in the central bank's ability and commitment to maintain price stability, inflation expectations will remain firmly anchored to price stability. This, in turn, will influence wage and price-setting in the economy given that, in an environment of price stability, wage and price-setters will not have to adjust their prices upwards for fear of higher inflation in the future. In this respect, credibility facilitates the task of monetary policy.

#### The expectations channel

#### Empirical knowledge of the transmission process

Understanding the transmission mechanism is crucial for monetary policy. It is, therefore, not surprising that numerous researchers have tried to analyse the complex interactions underlying it. Over time, more

Research contributes to a better understanding of the transmission mechanism

information and research results have become available and there is now a better understanding of monetary transmission in the euro area. One of the main findings of the Monetary Transmission Network is that monetary policy affects the economy mainly through the interest rate channel. Although the use of empirical methods for the quantification of the transmission mechanism and its channels has proved to be of great help in recent decades, the results have shed only partial light on the complex process involved. The learning process is therefore still underway and the ECB will continue to monitor possible behavioural and structural changes.

**Uncertainty about the transmission process**

When the ECB took responsibility for an entirely new currency area, it was faced with an extraordinary level of uncertainty – unknown to most other central banks – regarding the transmission process and the underlying data. In addition, institutional and behavioural changes following the introduction of the single currency at the beginning of 1999 may have altered the relationships between different economic variables.

**Conventional response to interest rate changes**

With the benefit of hindsight, a number of widely accepted and well-established facts based on experience in other economies have been confirmed to be valid also for the euro area. First, long and uncertain lags exist in the transmission of monetary impulses to the domestic price level. Second, in normal times, monetary policy works mainly through the interest rate channel: a tightening of monetary policy leads to a transitory decrease in output, which is estimated to reach its maximum between one and two years after the interest rate increase. Prices tend to decline more gradually, and respond

more sluggishly to the tightening of monetary policy than output. Moreover, recent research has revealed that the monetary transmission mechanism and, in particular, the response of output and inflation to interest rate shocks have not significantly changed since the introduction of the single currency. Third, beyond these aggregate effects, interest rate changes also affect economic activity via their impact on firms' cash flows and the supply of bank loans, hence confirming the relevance of the credit channel of monetary policy.

### **3.3 THE ECB'S MONETARY POLICY STRATEGY: GENERAL PRINCIPLES AND MAIN ELEMENTS**

**The task of monetary policy**

Taking into account the knowledge about the transmission process, the Governing Council of the ECB aims to influence conditions in the money market. The level of short-term interest rates can be set so as to ensure that price stability is maintained over the medium term. In so doing, the central bank is continuously confronted with a high level of uncertainty regarding both the nature of the economic shocks hitting the economy and the existence and strength of the relationships that link macroeconomic variables. Against this background, it is possible to identify some key characteristics of a successful monetary policy.

**Monetary policy must preserve the functioning of the transmission mechanism**

First, the functioning of the money market plays a vital role in the operation of the interest rate channel. Its proper functioning is central to the transmission of the ECB's policy rates. The smooth transmission of the Governing Council's monetary policy intentions to money market rates depends critically on the behaviour of banks and on their willingness to entertain smooth

exchanges of liquidity in the interbank market. Dysfunctional money markets can weaken the capacity of monetary policy to influence the outlook for price stability through interest rate adjustments alone. Recent events have demonstrated that the orderly transmission of monetary policy can be hampered when massive financial turbulences occur. In order to keep the transmission mechanism fully operational and to ensure the maintenance of price stability over the medium term, a central bank may need to introduce non-standard policy measures, i.e. liquidity interventions aimed at facilitating the transmission of the interest rate policy and enhancing the flows of credit to the broad economy.

**Monetary policy must be forward-looking and pre-emptive,...**

Second, owing to the lags and stochastic uncertainty in the transmission process, changes in monetary policy today will only affect the price level after a number of quarters or years. This means that central banks need to ascertain what policy stance is needed today in order to maintain price stability in the future, after the transmission lags unwind. In this sense, monetary policy must be forward-looking and pre-emptive.

**...focusing on the medium term,...**

Third, as the transmission lags make it impossible in the short run for monetary policy to offset unanticipated shocks to the price level (for example, those caused by changes in international commodity prices), some short-term volatility in inflation rates is unavoidable. In addition, owing to the complexity of the transmission process, there is always a large element of uncertainty surrounding the effects of monetary policy. For these reasons, monetary policy should have a medium-term orientation to avoid excessive activism and the introduction

of unnecessary volatility into the real economy.

Fourth, as stressed in Section 3.2, monetary policy will be considerably more effective if it firmly anchors inflation expectations. In this respect, the central bank should specify its goal, elaborate and keep to a consistent and systematic method for conducting monetary policy, and communicate clearly and openly. These are key elements for acquiring a high level of credibility, a necessary precondition for influencing the expectations of economic actors. Well-anchored inflation expectations act as automatic stabilisers in conditions of heightened macroeconomic uncertainty and amplify the potency of monetary policy in those conditions in which the transmission mechanism is perturbed.

**...firmly anchoring inflation expectations,...**

Finally, just like any other central bank, the ECB faces considerable uncertainty about the reliability of economic indicators, the structure of the euro area economy and the monetary policy transmission mechanism, among other things. A successful monetary policy therefore has to be broadly based, taking into account all relevant information in order to understand the factors driving economic developments, and cannot rely on a single model of the economy.

**...and be broadly based**

The ECB has adopted and announced a monetary policy strategy to ensure a consistent and systematic approach to monetary policy decisions. This monetary policy strategy embodies the above-mentioned general principles in order to meet the challenges facing the central bank. It aims to provide a comprehensive framework within which decisions on the appropriate level of short-term interest rates can be taken and explained to the public.

**A comprehensive framework for monetary policy decisions**

The main elements of the ECB's monetary policy strategy

The ECB's monetary policy strategy comprises two main elements. The first element of the strategy is a quantitative definition of price stability. The second element is a two-pillar approach to the analysis of the risks to price stability. This latter element provides a framework which ensures that the Governing Council assesses all the relevant information and analyses necessary to take monetary policy decisions in a forward-looking and pre-emptive manner. In this respect, the ECB's strategy also provides a framework for explaining monetary policy decisions to the public in a clear and transparent manner. The following sections of this chapter describe these elements in detail.

### 3.4 THE ECB'S QUANTITATIVE DEFINITION OF PRICE STABILITY

The ECB has defined price stability in quantitative terms

The Treaty on the Functioning of the European Union clearly establishes the maintenance of price stability as the primary objective of the Eurosystem. In order to specify this objective more precisely, the Governing Council of the ECB announced the following quantitative definition in 1998: "Price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%. Price stability is to be maintained over the medium term". Following a thorough evaluation of its monetary policy strategy in 2003, the Governing Council further clarified that, within the definition, it aims to maintain inflation rates "below, but close to, 2% over the medium term".

The definition both anchors inflation expectations and enhances the transparency of the ECB's monetary policy

The Governing Council decided to publicly announce a quantitative definition of price stability for a number of reasons. First, by clarifying how the

Governing Council interprets the ECB's primary objective, the definition helps to make the monetary policy framework easier to understand and makes monetary policy more transparent. Second, the definition of price stability provides a clear and measurable yardstick against which the public can hold the ECB accountable. Deviations of price developments from the definition of price stability can be identified, and the ECB would then be required to provide an explanation for such deviations and to communicate how it intends to re-establish price stability within a realistic period of time. Finally, the definition provides guidance to the public for forming expectations of future price developments.

The ECB's monetary policy has a euro area-wide focus. Accordingly, price stability is assessed on the basis of price developments in the euro area viewed as a whole, indicating that decisions regarding the single monetary policy aim at achieving price stability for the aggregate economy. This focus on the euro area as a whole is the natural consequence of the fact that, within a monetary union, monetary policy can only steer the average money market interest rate level in the area, i.e. it must use a tool that is uniform across the area.

Focus on the euro area as a whole

The definition also identifies a specific price index – namely the HICP for the euro area – as that to be used for the purposes of assessing whether price stability has been achieved. This index has been harmonised across the various countries of the euro area. The HICP is the index that most closely approximates the changes over time in the price of a representative basket of consumer expenditures (see Box 3.1). Price

The HICP

stability is measured in terms of headline inflation, which corresponds to the representative basket. The use of a harmonised index for headline inflation makes transparent the ECB's commitment to the full and effective protection against losses in the purchasing power of money. The so-called "core" inflation indices can

provide supplementary information about the causes of underlying price developments. They exclude certain volatile components from the basket, such as energy and unprocessed food. The ECB monitors such indicators, but does not consider core inflation to be an appropriate yardstick for measuring price stability in the euro area.

### Box 3.1 Construction and features of the Harmonised Index of Consumer Prices

The Governing Council of the ECB has defined price stability in terms of the Harmonised Index of Consumer Prices (HICP) for the euro area. The conceptual work related to the compilation of this price index is carried out by the European Commission (Eurostat) in close liaison with the national statistical institutes. As a key user, the Eurosystem has been closely involved in this work.

The HICP data released by Eurostat are available from January 1995 onwards. Estimated backdata, which are not fully comparable with HICP data from 1995, are available for the overall HICP and its main components from 1990. Based on the consumer expenditure weights applicable for 2010, goods account for 58.0% and services account for 42.0% of the HICP (see Table 3.1). The main idea behind the breakdown of overall HICP into individual components is to identify the different economic factors that impact on consumer price developments. For example, developments in the energy price component are closely related to oil price movements. Food prices are divided into processed and unprocessed foods, because prices for the latter are influenced by factors such as weather conditions and seasonal patterns, while such

**Table 3.1 Weights of the main euro area HICP components applicable for 2010**

<b>Overall index</b>	<b>100.0</b>
Goods prices	58.0
Unprocessed food	7.3
Processed food	11.9
Non-energy industrial goods	29.3
Energy	9.6
Services	42.0
Housing services	10.2
Transport	6.6
Communication	3.3
Recreation and personal services	14.9
Miscellaneous	7.1

Source: Eurostat.

factors have less of an impact on processed food prices. Services prices are sub-divided into five components which, on account of different market conditions, typically show differences in their respective developments.

The harmonisation measures introduced for the HICP in the different countries are based on several EU regulations and guidelines agreed with the Member States. Among other things, they concern coverage of consumer spending, initial standards for quality adjustment procedures, the treatment of new goods and services, and the revision of weights. “Initial” refers to the fact that some further harmonisation is envisaged in several areas. Moreover, a detailed and harmonised classification has been agreed for sub-indices, allowing a consistent comparison of price developments in consumer expenditure sub-groups across countries. As a result of the harmonisation and statistical improvements aimed at enhancing its accuracy, reliability and timeliness, the HICP has become a high-quality, international-standard price index and a broadly comparable indicator across countries. Improvements are still ongoing with regard to the standards for quality adjustment and sampling, as well as the treatment of owner-occupiers’ housing costs.

**The definition excludes deflation...**

By referring to “an increase in the HICP of below 2%” the definition makes clear that not only inflation above 2% but also deflation, i.e. a self-sustaining fall in the broad price index, is inconsistent with price stability. In the pursuit of price stability, the Governing Council’s explicit aim is to maintain the inflation rate at a level below, but close to, 2%. It thereby signals its commitment to provide an adequate margin to avoid the risks of deflation. While deflation implies similar costs to the economy as inflation (see Section 3.1), avoiding deflation is important because, once it occurs, it may become entrenched in view of the limitations encountered by monetary policy when the nominal interest rate falls to levels very close to zero. In a deflationary environment, if and when inflation expectations lose their anchor and start projecting a self-sustaining process of price level declines, monetary policy may not be able to provide a sufficient degree of support to the economy by using its interest rate instrument. Any attempt to bring the nominal interest rate below zero would fail, as the public would prefer to hold cash rather than

to lend or hold deposits at a negative rate. Although various stimulating monetary policy actions are possible even when nominal interest rates are at zero, these alternative, unconventional policies can be very costly. It is therefore more difficult for monetary policy to fight deflation than to fight inflation.

By setting the upper bound for inflation clearly above zero and aiming at inflation below, but close to, 2%, the ECB also takes into account the possibility of HICP inflation slightly overstating true inflation as a result of a small but positive bias in the measurement of price level changes using the HICP. For various reasons, consumer price indices may be subject to measurement errors. Such errors may arise if prices are not adequately adjusted for changes in the quality of the goods components or if some relevant transactions remain systematically out of the sample used to construct the index. In the past, a number of economic studies have identified a small but positive bias in the measurement of national consumer price indices, suggesting

**...takes into account a potential measurement bias...**

that (as a result of quality improvements in goods, for example) a measured inflation rate of zero could in fact imply a slight decline in the actual price level. Where the euro area is concerned, several measures have been taken to ensure timely updates of price statistics. Taking into account the continuous improvements being made to the HICP's properties by Eurostat (the European Commission agency responsible for this area of statistics at EU level), any bias is likely to be small.

...and the implications of inflation differentials in the euro area

The setting of a precise objective for monetary policy in a monetary union also takes into account the existence of inflation differentials across regions in the union which operate at different stages of economic development. The fact that some economies in the euro area are in a structural “catching-up” process might mean that – for a possibly extended period of time – their inflation rates will be higher than the average. The inflation rate in countries at very advanced stages of development could – by implication – be forced to structurally operate at excessively low or negative inflation rates. In principle, inflation differentials across regions are a normal feature of any monetary union. They are an integral part of the adjustment mechanism resulting from divergences in economic developments across the regions' economies. Monetary policy can only influence the price level of the euro area as a whole and cannot affect inflation differentials across regions or cities. Inflation differentials may be due to transitory factors and may thus be only temporary. Such differentials are of little economic concern. However, if real convergence between regions in a currency union is incomplete, structural inflation differentials across the regions comprising the union may

arise. For example, there may be differences in initial income levels and an ongoing process of catching-up in standards of living within a currency area.

Inflation differentials between the euro area countries are moderate and broadly in line with other large currency areas, such as the United States (see Section 2.8). Such differentials may result from differences in demographic trends, long-term catching-up processes, or ongoing adjustments leading to a more efficient allocation of resources. To some extent, the persistence of inflation differentials of individual euro area countries may be the result of structural inefficiencies or misaligned national policies. Persistent above-average inflation rates can lead to a loss of competitiveness of the respective countries. In a monetary union, domestic policies must address such inflation differentials. Taking the existence of unavoidable inflation differences into account, it has been argued that the ECB's monetary policy should aim to achieve – over the medium term – an inflation rate for the area as a whole that is high enough to prevent regions with structurally lower inflation rates from having to meet the costs of possible downward nominal rigidities or entering periods of protracted deflation. According to all available studies, a rate of inflation below, but close to, 2% for the euro area provides a sufficient margin also in this respect.

Unavoidable inflation differentials in the euro area

Finally, a fundamental aspect of the ECB's monetary policy is that it aims to pursue price stability “over the medium term”. As outlined above, this reflects the consensus that monetary policy cannot, and therefore should not, attempt to fine-tune

The medium-term orientation

developments in prices or inflation over short horizons of a few weeks or months. Changes in monetary policy only affect prices with a variable time lag, and the magnitude of the eventual impact is uncertain and state dependent (see Section 3.2). This implies that monetary policy cannot offset all unanticipated disturbances to the price

level. Some short-term volatility in inflation is therefore inevitable. As Box 3.2 explains, the medium-term orientation also allows monetary policy to make sure that in reacting to shocks that have an impact on inflation, the central bank does not become an independent source of unnecessary output fluctuations.

### **Box 3.2 The medium-term orientation of the ECB's monetary policy**

An economy is continuously subject to largely unforeseeable shocks that also affect price developments. At the same time, monetary policy can only affect price developments with significant time lags, which are variable and, like most economic relationships, highly uncertain. Against this background, it would be impossible for any central bank to keep inflation at a specific point target at all times or to bring it back to a desired level within a very short period of time. Consequently, monetary policy needs to act in a forward-looking manner and can only maintain price stability over longer periods of time. This is the reasoning that lies at the core of the ECB's medium-term orientation.

The ECB has not defined the medium term with reference to a predetermined horizon, but deliberately retains some flexibility with regard to the exact time frame. Several reasons underpin that choice. It is not advisable to specify ex ante a precise horizon for the conduct of monetary policy, since the transmission mechanism spans a variable, uncertain period of time. In addition, the ECB's mandate is formulated in terms of a price stability objective rather than an inflation target. This element helps policy-makers to avoid mechanistic reactions in response to shorter-term developments aimed at restoring the inflation target at a fixed short-term policy horizon. Furthermore, the optimal monetary policy response to ensure price stability always depends on the specific nature and size of the shocks affecting the economy. For a wide variety of shocks (e.g. demand shocks that move output and prices in the same direction) a prompt reaction by monetary policy is often adequate and will not only preserve price stability but also help to stabilise the economy. However, there are other types of economic shocks (e.g. of a cost-push nature, such as oil price hikes) that move output and prices in opposite directions. For example, monetary policy has to accept the inflationary consequences caused by the first-round effects of oil price shocks, since little – if anything – can be done to counter them. An excessively aggressive policy response to restore price stability in a very short span of time would, in these circumstances, risk imparting a significant cost in terms of output and employment volatility which, over a longer horizon, could also affect price developments. In these cases, it is widely recognised that a gradual response of monetary policy is appropriate both to avoid unnecessarily high volatility in real activity and to maintain price stability over a longer horizon. Thus, the medium-term orientation also gives the ECB the flexibility required to respond in an appropriate manner to the different economic shocks that might occur.

In sum, the focus of the ECB's monetary policy in pursuing its price stability mandate is on the medium term. The ECB's decision not to give the policy-relevant horizon a precise time dimension has been an appropriate choice, both in normal and crisis times. The medium-term orientation implies that the policy-relevant horizon, defined as the horizon at which the ECB pursues the sustainable alignment of consumer price inflation with its price stability objective, can be of variable length over time, taking into account the fact that transmission lags are not only long but also variable and uncertain. Furthermore, the inflationary or deflationary impact associated with the accumulation of financial imbalances may go beyond the standard horizon of two to three years commonly used in inflation projections. This underlines the importance of the monetary analysis (see Section 3.5) which provides policy-makers with the necessary tools to pursue a medium to long-term perspective.

### 3.5 THE ANALYSIS OF RISKS TO PRICE STABILITY IN THE ECB'S MONETARY POLICY STRATEGY

#### The two pillars of the ECB's monetary policy strategy

The two-pillar  
framework  
is a tool  
for organising  
information...

In order to best serve its objective of maintaining price stability, the Governing Council regularly assesses the risks to price stability. Its approach to organising, evaluating and cross-checking all information relevant for assessing the risks to price stability is based on two analytical perspectives, referred to as the "two pillars": the economic analysis and the monetary analysis. They form the basis for the Governing Council's monetary policy decisions. This approach was confirmed and further clarified by the Governing Council in May 2003.

...based on  
two analytical  
perspectives...

The comprehensive analysis of the risks to price stability is organised on the basis of two complementary perspectives on determining price developments. One perspective, referred to as the "economic analysis", is aimed at assessing the short to medium-term determinants of price developments, with a focus on real activity and cost factors driving prices

over those horizons. It takes account of the fact that short to medium-term price developments over those horizons are influenced largely by the interplay of supply and demand in the goods, services and factor markets. A second perspective, referred to as the "monetary analysis", focuses on a medium to longer-term horizon. It exploits the long-run link between money and prices. The monetary analysis serves, in particular, as a means of cross-checking, from a medium to long-term perspective, the short to medium-term indications for monetary policy derived from the economic analysis.

The two-pillar approach is designed to ensure that no relevant information is lost in the assessment of the risks to price stability and that appropriate attention is paid to different perspectives and the cross-checking of information in order to reach an overall judgement on the risks to price stability. It represents, and conveys to the public, the notion of diversified analysis and ensures robust decision-making based on different analytical perspectives (see Box 3.3 for a discussion of alternative strategies).

...to ensure  
that no relevant  
information  
is lost

### Box 3.3 Alternative monetary policy strategies

A number of other monetary policy strategies are, or have been, pursued by other central banks. Several of these were considered by the European Monetary Institute and the ECB before the decision was taken to adopt the stability-oriented two-pillar strategy.

One such strategy is **monetary targeting**. In practice, this means that a central bank changes official interest rates in an attempt to either speed up or slow down monetary growth to a specific and pre-announced rate. This target rate is derived so as to be compatible with price stability. Such a strategy rests on two premises. First, a stable relationship between money and the price level (e.g. in the form of a money demand equation) should exist over the medium term. If so, a path consistent with price stability can be derived for the money stock. Second, the money stock should be controllable by monetary policy. Taken together, these conditions imply that the central bank can use changes in official interest rates to keep the money stock on its prescribed path and thereby – because of the stability of the money-price relationship – indirectly maintain price stability.

While central bank experiences with this approach influenced the design of the ECB's strategy, the ECB decided not to adopt monetary targeting. This decision acknowledged the existence of information in macroeconomic variables other than money that is important for monetary policy decisions aimed at price stability. Furthermore, some uncertainties about the empirical properties of money in the euro area were created by the institutional and behavioural changes associated with the transition to monetary union, and – more generally – by the possibility that special factors might temporarily distort monetary developments. It is therefore not advisable to rely exclusively on monetary analysis.

Another strategy is **direct inflation targeting**. Rather than using money to guide monetary policy decisions, this approach focuses on developments in inflation itself relative to a published inflation target. In practice, different forms of inflation targeting exist. They all have in common a published numerical inflation target and a predefined policy horizon. Central banks using this approach communicate monetary policy decisions in terms of a more or less mechanical reaction to deviations in a forecast for a particular measure of inflation from the inflation target at a particular horizon. The central bank's forecast for inflation is therefore placed at the centre of policy analysis and discussions, both within the central bank and in its presentations to the public.

While there are many similarities between the ECB's strategy and strategies of other central banks, the ECB decided not to pursue a direct inflation targeting strategy in the sense discussed above for a number of reasons. First, focusing entirely on a forecast inflation figure does not provide a comprehensive and reliable framework for identifying the nature of threats to price stability. The appropriate monetary policy response generally depends on the sources of these risks to price stability. As a minimum, it requires a deeper analysis of the underlying economic situation and behaviour than is captured in an inflation forecast alone. Second, various aspects of the textbook inflation targeting approach – such as the fixed horizon (e.g. two years) of the forecast from which monetary policy decisions feed back – are somewhat arbitrary and in many circumstances do not appear to be optimal. Factors that may affect inflation beyond the chosen horizon, such as asset price imbalances, may need to be taken into account in current monetary

policy decisions. This became particularly obvious during the recent financial crisis, and led some inflation targeting central banks to adopt a more flexible stance concerning the policy horizon. Third, it is nevertheless difficult to integrate the information contained in monetary aggregates into inflation forecasts that are based on conventional macroeconomic models. Finally, the ECB takes the view that relying on a single forecast would not be appropriate, given the considerable uncertainty relating to the structure of the euro area economy. It is considered preferable to adopt a diversified approach to the analysis of economic data based on a variety of analytical methodologies.

A third strategy is **exchange rate targeting**, which was pursued by several European countries prior to monetary union in the context of the exchange rate mechanism of the European Monetary System. For small open economies where the production and consumption of internationally traded goods are a large part of the economy, developments in the exchange rate can have a significant impact on the price level through their effect on the price of imports. An exchange rate targeting strategy was not considered appropriate for the euro area, as it is a large and relatively closed economy where the impact of exchange rate developments on the price level is more modest.

### Economic analysis

Analysis of short to medium-term risks to price stability...

The economic analysis focuses mainly on the assessment of current economic and financial developments and the implied short to medium-term risks to price stability. The economic and financial variables that are the subject of this analysis include, for example: developments in overall output; aggregate demand and its components; fiscal policy; capital and labour market conditions; a broad range of price and cost indicators; developments in the exchange rate, the global economy and the balance of payments; financial markets and the balance sheet positions of euro area sectors. All these factors are helpful in assessing the dynamics of real activity and the likely development of prices from the perspective of the interplay between supply and demand in the goods, services and factor markets at shorter horizons. Moreover, staff macroeconomic projection exercises play an important role in the economic analysis.

...contributes to revealing the nature of shocks

In the economic analysis, due attention is paid to the need to identify the nature of shocks hitting the economy, their effects

on cost and pricing behaviour and the short to medium-term prospects for their propagation in the economy. To take appropriate decisions, the Governing Council needs to have a comprehensive understanding of the prevailing economic situation and must be aware of the specific nature and magnitude of any economic disturbances threatening price stability. For example, the appropriate monetary policy response to the inflationary consequences of a temporary rise in the international price of oil might be different from the appropriate response to higher consumer prices resulting from wage increases not in line with productivity growth. The former results in a transient and short-lived increase in inflation which quickly reverses. If this shock does not lead to higher inflation expectations, it may pose less of a threat to price stability over the medium term. In the case of excessive wage increases, however, the danger exists that a self-sustaining spiral of higher costs, higher prices and higher wage demands may be created. To avoid such a spiral, a determined monetary policy reaction to reaffirm the central bank's commitment to the maintenance of price stability,

thereby helping to stabilise inflation expectations, may be the appropriate response.

Against this background, the ECB regularly reviews developments in overall output, demand and labour market conditions, a broad range of price and cost indicators, and fiscal policy, as well as the balance of payments for the

euro area. Among other things, these indicators help to assess movements in aggregate demand, aggregate supply and the degree of capacity utilisation. The ECB also carries out several surveys that provide further input into the economic analysis, such as the Survey of Professional Forecasters (SPF). Box 3.4 provides information on the euro area indicators that are analysed by the ECB.

### Box 3.4 Statistics relating to developments in the euro area

As explained in Section 3.2, the chain of causes and effects linking monetary policy decisions with the price level is complex and involves time lags, which may be significant. Therefore, policy-makers need to monitor a wide range of indicators when assessing the outlook for price stability. High quality statistics are vital to obtain a reliable picture of the economy. Policy mistakes attributable to incomplete or unreliable statistics can be costly in terms of higher inflation and output volatility. Common methodological standards have been defined for many areas of euro area statistics. The provision of statistics for the euro area is being continuously developed and improved. This box gives a brief overview of the main building blocks of euro area statistics.

#### Access to euro area statistics

ECB press releases and the “Euro area statistics” section of the ECB’s Monthly Bulletin (or the Statistics Pocket Book) are the main official sources. They can be downloaded from the ECB’s website or acquired in hard copy free of charge. More detailed statistical information is available from the ECB’s Statistical Data Warehouse (<http://sdw.ecb.europa.eu>) in the “Statistics” section of the ECB’s website. Here, users can extract data in various formats and obtain information on the respective (legal) definitions and concepts used for the various statistics.

#### General economic statistics

Data on prices, costs, output, demand and the labour market are of crucial importance for the ECB’s conduct of monetary policy. The ECB defines price stability, its primary objective, in terms of the HICP for the euro area. Price and cost developments may play an important role in signalling future changes in consumer prices as changes in production costs feed through to consumer prices. Labour costs, which are an important element of overall production costs, have a significant impact on price formation. Indicators of output and demand (national accounts, short-term statistics on activity in industry and services, orders, and qualitative survey data) and labour market data (on employment, unemployment, vacancies and labour market participation) provide information on the cyclical position of the economy.

#### Monetary statistics and statistics relating to financial institutions and markets

Each month the ECB compiles and disseminates a wide range of monetary statistics and statistics relating to financial institutions and markets. Monetary aggregates and their counterparts are calculated from the balance sheet of the monetary financial institution (MFI)

sector (see Section 2.7). These statistics also provide the basis for calculating the minimum reserves that MFIs must hold with euro area national central banks (NCBs) (see Section 4.3). Moreover, the ECB is in charge of statistics for credit institutions and money market funds, which are both part of the MFI sector, as well as statistics for investment funds. The ECB also compiles harmonised statistics on the interest rates applied by MFIs on loans to and deposits from euro area households and firms. It produces detailed statistics on financial markets (e.g. the euro area yield curve which is published every day).

### **Balance of payments and other external statistics**

Balance of payments data for the euro area include the main transactions between euro area residents and residents of countries outside the euro area. Along with external trade statistics, they provide important information on how developments in exports and imports and the respective price movements may affect inflationary pressures via their impact on demand conditions. The ECB publishes effective exchange rates for the euro area and harmonised competitiveness indicators for euro area countries. These indices contribute to the assessment of the potential impact on import prices of movements in the exchange rate and changes in commodity prices. In addition, the ECB publishes other external statistics, such as the quarterly and annual statistics on the international investment position of the euro area, which provide an overall picture of the euro area's claims and liabilities vis-à-vis the rest of the world.

### **Euro area accounts**

Economic and financial accounts for the euro area present financial transactions and balance sheets for all economic sectors, such as households and financial and non-financial corporations. These statistics show the different sectors' financial investment and financing activities, the development of wealth and debt, and the financial interrelationships between the sectors. They follow the integrated approach outlined in the European system of national and regional accounts (ESA 95). Among other applications, the statistics are required for an analysis of the sources of portfolio shifts in financial balance sheets and for cross-checking the consistency of the high-frequency data provided by monetary and financial statistics.

### **Government finance statistics**

The ECB receives annual data necessary to assess convergence (i.e. a Member State's readiness to adopt the euro) and statistics relating to the excessive deficit procedure and the Stability and Growth Pact. Annual government finance data cover revenue and expenditure, government debt and the relationship between the government deficit and changes in government debt. Quarterly government finance statistics (including data on revenue and expenditure) form an important part of the integrated system of sectoral non-financial and financial accounts for the euro area.

### **Surveys**

Business and consumer tendency surveys provide leading and timely information for quantitative indicators. Such surveys are carried out by the European Commission, commercial data providers and statistical institutes. In addition, the Eurosystem conducts its own surveys which facilitate a timely assessment of euro area financing conditions. A quarterly bank lending survey provides information on supply and demand conditions in the euro area credit markets and on the lending policies of euro area banks. A biannual survey on the access to finance of small and medium-sized enterprises helps to assess enterprises' financing needs, the structure of financing and the availability of finance. The Survey of Professional Forecasters provides information on expectations regarding euro area inflation, GDP growth and unemployment rates by sector. A new survey on euro area households' finance and consumption will enhance the understanding of households' economic decisions.

Developments in financial market indicators and asset prices (see Box 3.5) are also closely monitored under the economic analysis to the extent that movements in asset prices affect price developments via income and wealth effects. For example, as equity prices

rise, share-owning households become wealthier and may choose to increase their consumption. This will add to consumer demand and may fuel domestic inflationary pressures. Conversely, when equity prices fall, households may well reduce consumption.

### Box 3.5 Extracting information from financial market prices

Financial market prices incorporate investors' expectations about future economic developments. As such, they are a valuable source of information for monetary policy-makers. In particular, the term structures of nominal and real bond yields can be used to gauge private sector expectations of future interest rates and inflation.

Forward rates, which represent the path of expected future short-term interest rates and related risk premia, can be derived from the term structure of nominal bond yields. This path is clearly important information for the central bank, as it indicates when and to what extent market participants expect policy rates to change.

A joint analysis of nominal and real bond yields helps to gauge private sector inflation expectations. The yield on a conventional nominal bond reflects three components: the real interest rate, investors' inflation expectations, and a risk premium, which compensates investors for inflation uncertainty. The other required ingredient for extracting inflation expectations is the yield on an inflation-linked bond. In the euro area, there is a large market for these government debt instruments whose principal and coupon payments are determined by inflation developments as measured by the HICP (excluding tobacco). In this way, bond holders are essentially shielded from inflation risk, and the yields on the bonds can be understood as measures of real interest rates. Accordingly, the difference between a conventional nominal and an inflation-linked bond yield with the same residual maturity represents investors' inflation expectations and related inflation risk premia. This nominal/real yield difference is known as the break-even inflation rate (BEIR).

Since BEIRs can be computed for various maturities, they are useful for monitoring inflation expectations and related risk premia over a wide range of horizons. Moreover, it is possible to derive forward BEIR measures from this term structure. For example, the five-year forward break-even inflation rate five years ahead is a measure of the anchoring of longer-term inflation expectations.

As BEIRs are based on daily financial market data, they provide information at a high frequency. However, some caution is warranted in interpreting the signals from BEIRs. First, the BEIRs reflect both "pure" inflation expectations and inflation risk premia. Although certain econometric approaches based on asset pricing models address this issue, the resulting decomposition into expectations and premia is subject to considerable uncertainty. Second, some additional factors influence the trading and pricing of nominal and inflation-linked bonds, such as, for example, bond market liquidity conditions or strong flight-to-safety flows in times of financial stress, which usually have different impacts on nominal and inflation-linked bonds. These factors can appreciably affect

measured BEIRs, without any underlying changes in inflation expectations and related risk premia. Such influences, blurring the inflation-related information in BEIRs, were particularly noticeable during various phases of the financial crisis that started in 2007.

For these reasons, it is crucial to cross-check information from BEIRs with signals from other indicators. These may include survey measures of inflation expectations (although available at a lower frequency), as well as other financial market instruments, such as inflation swap rates. Inflation swaps are derivative instruments under which the two contract parties agree to exchange a fixed payment with a payment that is linked to actual inflation developments during the contract period. Using these instruments, inflation expectations and related risk premia can be derived in a similar fashion as in the case of BEIRs. At the same time, the factors that distort the information content of BEIRs are not expected to affect inflation swaps simultaneously.

Besides the term structure of nominal and real interest rates, other asset prices contain relevant information about private sector expectations. These include expectations of the level and variability of future asset prices, but also, more indirectly, expectations of future economic activity. Accordingly, the toolkit of monetary policy analysis also includes methods for extracting market expectations from instruments such as exchange rate futures or stock options.

**Asset prices contain information on private sector expectations**

Asset prices and financial yields can also be analysed to derive information about the expectations of the financial markets, including expected future price developments. For example, when buying and selling bonds, financial market participants implicitly reveal their expectations about future developments in real interest rates and inflation. Using a variety of techniques, the ECB can analyse financial prices to extract the markets' implicit expectations about future developments. Asset markets, and thus also asset prices, are by their very nature forward-looking. Changes in asset prices therefore largely reflect "news" – information about developments that the asset markets had not been expecting. In this sense, the monitoring of asset prices might help to identify shocks that are currently hitting the economy, including shocks to expectations about future economic developments. In analysing financial markets, statistical information on financial asset prices from various

sources is assessed. On top of this, the ECB collects certain statistical information itself (see Box 3.4).

Developments in the exchange rate are also closely assessed for their implications for price stability. As already discussed in Section 3.2, exchange rate movements have a direct effect on price developments through their impact on import prices. Changes in the exchange rate may also alter the price-competitiveness of domestically produced goods on international markets, thereby influencing demand conditions and potentially the outlook for prices. If such exchange rate effects alter the expectations and behaviour of wage and price-setters, the potential for second-round effects stemming from the exchange rate may exist.

The ECB's economic analysis has been enhanced over time. This is largely due to the progress made in the production of euro area real economy and financial statistics and in the analytical processing

**Analysis of exchange rate developments**

**The economic analysis has been enhanced over time**

of such information. Furthermore, a number of analytical and empirical models have been developed to better assess and understand past and ongoing developments, to make more reliable short-term forecasts and to underpin the regular macroeconomic projection exercises for the euro area economy. By monitoring incoming data and using all the available analytical tools, a comprehensive assessment of the economic situation and the outlook for the euro area can be conducted and updated continuously.

**Euro area  
macroeconomic  
projections...**

The ECB publishes macroeconomic projections for the euro area four times a year in its Monthly Bulletin. Eurosystem staff projections, which are produced jointly by experts from both the ECB and the euro area NCBs twice a year, are published in the June and December issues. ECB staff projections are published in the March and September issues. These staff macroeconomic projection exercises play an important role in the economic analysis. They help to structure and synthesise a large amount of economic data and ensure consistency across different sources of economic evidence. In this respect, they are a key element in sharpening the assessment of economic prospects and the short to medium-term fluctuations of inflation around its trend.

**...based on  
technical  
assumptions,...**

Projections are referred to as such to underline that they are the results of a scenario based on a set of underlying technical assumptions. Initially, staff projections were conditioned on a constant interest rate path. In fact, it represents a scenario that is unlikely to materialise in practice, since monetary policy will always act to address any threats to price stability. Since June 2006 the underlying

assumption for short-term interest rates has been based on market expectations. The change was of a purely technical nature, and was motivated by the potential for further improvements in the quality and internal consistency of the projections. Given deviations between the assumed interest rate path and the actual outcome, it is clear that the projection will not, in general, be the best predictor of future outcomes, in particular at somewhat longer horizons. Therefore, the macroeconomic projections of inflation by Eurosystem/ECB staff should not, under any circumstances, be seen as questioning the commitment of the Governing Council to maintaining price stability over the medium term. Wage and price-setters (i.e. the government, firms and households) should rely on the ECB's quantitative definition of price stability and especially the aim to keep inflation below, but close to, 2% as the best prediction of medium and long-term price developments.

**...models  
and technical  
expertise of  
staff...**

Staff macroeconomic projections are produced using a number of tools and inputs. Several different macroeconomic models are available for the euro area as well as for individual member countries. In a situation of model uncertainty, it is preferable to employ a variety of them, embodying various views of economic structure and estimated using different methodologies, rather than rely on a unique and all-encompassing framework. The projections produced by these models are adjusted in the light of the technical expertise of staff both at the ECB and at the NCBs. They are presented in the form of ranges, thereby acknowledging the inevitable uncertainty surrounding macroeconomic projections. Various methods have been applied to compute

these ranges. Since December 2009 the width of the ranges has been derived from errors made in past staff projections, where large errors are identified as outliers and excluded from the sample.

...are useful, although projections have some limitations...

Although they play a useful role, the staff macroeconomic projections have their limitations. First, the final projection depends to a considerable extent on the underlying conceptual framework and the techniques employed. Any such framework is bound to be a simplification of reality and may on occasions neglect the key issues that are relevant for monetary policy. Second, economic projections can only provide a summary description of the economy and thus do not incorporate all relevant information. In particular, important information, such as that contained in monetary aggregates, is not easily integrated into the framework used to produce the projections, or information may change after the projections are finalised. Third, expert judgement is inevitably incorporated into projections, and there can be good reasons not to agree with particular views. Fourth, projections are always based on specific assumptions – such as those concerning oil prices or exchange rates – with which it is possible to disagree or which can change rapidly, making the projections outdated. A further consideration relates to the fact that the degree to which forecasts prove reliable tends to fall significantly as the length of the forecasting horizon increases. On some occasions, notably in the face of uncertainty about the sustainability of asset price movements, it may be advisable for a central bank to set interest rates in response to such developments that might otherwise impact on price stability at horizons

extending well beyond conventional forecasting horizons.

Finally, with a view to the assumptions usually underlying the models used for forecasts, a central bank is well advised to evaluate and compare the robustness of the information stemming from various sources. To fully assess the economic situation and the outlook for price stability, the Governing Council must receive input based on a variety of techniques and policy simulations based on various models, and must use its own judgement, particularly with regard to the likelihood that certain hypothetical scenarios will eventually materialise. An articulated and broadly based analysis of the economic forces at work in the economy must therefore always accompany the use of projections.

...which points to the need to use various sources and techniques

For all these reasons, staff macroeconomic projections play an important but not all-encompassing role in the ECB's monetary policy strategy. The Governing Council evaluates them together with many other pieces of information and forms of analysis organised within the two-pillar framework. These include monetary analysis and analyses of financial prices, individual indicators and the forecasts of other institutions. The Governing Council neither assumes responsibility for the projections nor does it use the staff projections as its only tool for organising and communicating its assessment.

Overall, projections play an important, but not all-encompassing role

### Monetary analysis

The ECB's monetary policy strategy assigns a prominent role to monetary analysis. This role reflects the robust relationship between monetary growth and inflation over the medium to long run (Box 3.6 summarises several studies

Money provides a nominal anchor

on this issue). This widely accepted relationship provides a firm and reliable nominal anchor for the conduct of monetary policy, offering an insight into trends in inflation persisting beyond the horizons typically associated with conventional inflation forecasts. Assigning a prominent role to monetary analysis in the ECB's strategy therefore also helps to underpin the medium-term orientation of the single monetary policy. In this respect, the monetary analysis ensures adherence to a fundamental principle: in responding to economic developments, a central bank must never

lose sight of the need to ensure that the rate of money growth is consistent with price stability over sufficiently extended horizons. By taking policy decisions and evaluating their consequences not only on the basis of the short-term indications stemming from the analysis of economic and financial conditions but also on the basis of money and liquidity considerations, a central bank can see through the transient impact of the various short-term shocks on the price level and not be tempted to take an overly activist course in determining the monetary policy stance.

### Box 3.6 Money and prices in the long run

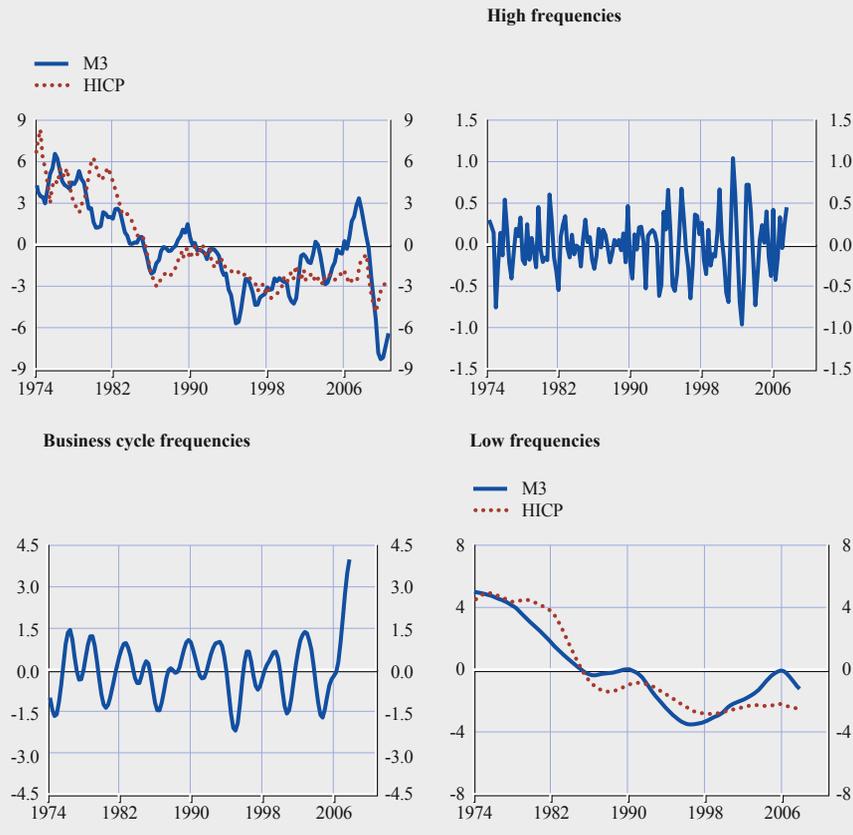
The long-run link between money growth and inflation is one of the most robust and enduring empirical findings in the entire economic literature. Importantly, this relationship has been found to hold across time, countries and monetary policy regimes, suggesting that it is “hardwired” into the structure of the economy.

The existence of a robust long-run relationship between money growth and inflation has been documented for the euro area in a number of studies that use different empirical techniques. For illustrative purposes, it is convenient to rely on statistical filtering methods that disentangle fluctuations in money and inflation according to their different degrees of persistence. In particular, this technique distinguishes the more persistent, trend-like movements in money (the so-called “low-frequency component”) from movements that exhibit shorter fluctuations associated with the business cycle and from movements that reflect erratic and transitory developments (the “high frequency component”). The evidence provided in Chart 3.2 confirms the long-run link between money and prices in two respects: the low-frequency component of M3 growth moves closely in line with the low-frequency component of inflation, and developments in trend money growth tend to systematically lead developments in trend inflation.

A robust long-run link between money growth and inflation does not preclude the existence of a close relationship also at higher frequencies. Indeed, empirical studies have shown that the persistence of movements in money that are best linked to trend inflation varies depending on the nature of the shocks hitting the economy. In general, however, short-run movements in money tend to be affected by temporary shifts in money demand and changes in the financial system that have no bearing on price developments, thereby obscuring the link between money growth and inflation in the short run. For this reason, the assessment of the short to medium-term inflation dynamics in the ECB's monetary policy framework relies mainly on the economic analysis.

## Chart 3.2 Frequency decomposition of M3 and HICP

(annual percentage changes; deviations from mean)



Sources: ECB, ECB calculations.

The observation that the link between money growth and inflation is most robust in the long run, i.e. in the trend movements of the two variables, does not challenge the policy relevance of the relationship. Trend movements in inflation are central to monetary policy-making: they are intimately related to long-term inflation expectations and, precisely because of their persistent, trend-like nature, will exert a lasting influence on inflation that must be taken into account when formulating monetary policy aimed at maintaining price stability. In addition, it is important to appreciate that observed movements in inflation at any point in time reflect movements in the components of all frequencies, including the trend component. The advance information regarding movements in trend inflation that is embedded in monetary trends is therefore of particular relevance for monetary policy.

### A practical approach to identifying monetary trends

The medium to long-term perspective on risks to price stability provided by the monetary analysis implies that the link between short-term monetary developments and monetary policy decisions can never be direct. The

practical challenge is to identify the unobserved underlying rate of monetary expansion, i.e. the rate of money growth that provides the relevant signal for risks to price stability in the medium to long term. The statistical filtering

approach to the identification of monetary trends discussed in Box 3.6 is useful for illustrating the long-run link between money and prices, but it is not a reliable practical framework for deriving policy assessments in real time. The smoothing implicit in any filtering approach requires the use of both known past and unknown future observations of money in order to extract accurately the low-frequency component at the end of the sample.

The ECB's monetary analysis therefore adopts a more practical approach to identifying the underlying rate of monetary expansion. This approach entails a comprehensive analysis of the liquidity situation, going well beyond the headline M3 aggregate and extending to a careful examination of the balance sheet context of M3 growth (i.e. the counterparts of M3 in the consolidated balance sheet of the MFI sector, in particular loans to the private sector), as well as the composition of M3 growth (i.e. the components and sectoral contributions).

The approach draws on a complementary use of expert knowledge and more formal and structured methods, involving a suite of models and analytical tools (Box 3.7 provides an overview of some of the tools regularly employed). Expert knowledge of the institutional features of the financial and monetary sector helps to identify the component of observed monetary developments that is attributable to transitory factors, such as, for instance, changes in the tax treatment of interest or capital income, or adjustments in the portfolio allocation behaviour of the money-holding sectors. Monetary developments driven by such "special factors" are not informative about the outlook for price stability.

This approach is also relevant for the operational use of the ECB's reference value for the growth of the broad monetary aggregate M3. Deviations of actual monetary developments from this reference value can reflect both transitory and more persistent factors. Only the latter tend to have a bearing on the trend of price developments. Monetary policy hence does not react mechanically to deviations of M3 growth from the reference value. Such deviations, however, trigger increased efforts to identify and assess the nature and persistence of the forces responsible. A much richer set of information than M3 alone – including inter alia the components and counterparts of M3 in the banks' balance sheet, the behaviour of interest rate spreads and information from the ECB's bank lending survey – is used to support these efforts. But the concept of the reference value illustrates the ECB's commitment to conducting a thorough analysis of monetary developments and thus provides a guarantee of this medium to long-term orientation.

The robust long-run link between money growth and price developments enables assessments to be made regarding the medium to long-term risks to price stability without having to take a specific view on the operation of the transmission mechanism. At the same time, the lags with which protracted deviations of monetary dynamics from historical norms lead to risks to price stability can be long and varying. This underlines the importance of understanding the channels through which monetary dynamics ultimately have a bearing on price developments. While trends in monetary developments are the prime focus of monetary analysis, persistent deviations from those trends are

**The ECB's reference value for monetary growth**

**Monetary analysis focuses on the medium to long-term risks to price stability...**

of particular interest insofar as they have implications for asset market dynamics. Monetary imbalances in the form of excess money and credit creation may manifest themselves in higher asset prices before they can become an active factor in determining consumer price trends over the medium to long term (this link is discussed in Section 3.6).

... and provides valuable insights on the transmission mechanism

The ECB's monetary analysis aims to identify the underlying rate of monetary expansion that is robustly linked to inflation dynamics over the medium to longer term. At the same time, the comprehensive analysis of monetary and credit developments can provide valuable insights into the operation of the transmission mechanism. In this latter respect, monetary analysis helps sharpen the analysis of adjustments to households', firms' and bank portfolios in response to changes in the yield configuration and in asset prices more broadly. In addition, the detailed analysis of bank balance sheets is critical to the assessment of the

condition of the banking sector and therefore the availability of funding to the non-financial sector. Ultimately, these types of insight are also particularly helpful when forming a view on the sustainability of a given asset price configuration and the observed trends in financial markets.

From this latter perspective, incorporating a systematic analysis of monetary imbalances into the policy process in the form of a strategic monetary pillar can offer a central bank a tool which can be used to assess whether financial market developments are healthy and sustainable, or rather a source of potential threat for the stability of prices and of the broader economy over a longer horizon. In the latter case, a monetary pillar can promote a sort of "leaning against the wind" attitude vis-à-vis financial imbalances which can provide a valuable pre-emptive line of defence against risks to price stability that are likely to materialise in the long term.

### Box 3.7 Tools for monetary analysis

The ECB's monetary analysis has been significantly enhanced over past years. Through the development of new tools, the operationalisation of the relationship between monetary trends and underlying price level dynamics has become richer and better underpinned analytically. Against this background, the box describes four categories of analytical tools that are regularly and extensively used in the ECB's monetary analysis: money demand models, structural general equilibrium models with an active role for money and credit, money-based inflation risk indicators and flow-of-funds analysis.

Money demand models are used to extract policy-relevant assessments from monetary developments in two broad ways. First, they are used to quantify the contributions of the various macroeconomic determinants to observed monetary growth. Such an analysis enables a deeper understanding of the causes of monetary growth, which is necessary to form a view on the underlying rate of monetary expansion. Second, the models are used to develop normative benchmarks for the level of money or money growth that is consistent with price stability over the medium term. However, deviations of actual money growth from such benchmarks should be interpreted with caution. Such deviations may be reversed through a protracted period of

low money growth, rather than higher inflation, linked, for instance, to a deleveraging of the money-holding sectors.

Structural general equilibrium models incorporating an active role for money and credit offer a complementary approach to money demand modelling. These models offer scope to identify the factors driving money and credit developments more precisely. They also provide an internally consistent behavioural view of how money growth may be linked to price developments, for instance, via expectational effects or asset price movements.

The process of forming a view on the underlying monetary trends and, ultimately, of drawing implications for risks to price stability is first and foremost a judgemental exercise of synthesising across models, tools, datasets and analyses. This exercise is, however, complemented by the compilation of money-based inflation risk indicators. These are empirical tools that exploit the leading indicator properties of smoothed measures of monetary growth for average inflation over a medium-term horizon and are therefore used to provide a summary measure of the risks to price stability over this horizon signalled by the monetary data.

Flow-of-funds analysis draws on the consistent sectoral framework of the integrated euro area accounts. It complements and enriches the monetary analysis based on MFI balance sheets in three main ways. First, it expressly considers portfolio investment and financing decisions across a broader set of financial instruments and a wider spectrum of financial intermediation channels. Second, it is used to produce financial projections, which are part of the regular macroeconomic projection exercises, to reconcile financial information with the baseline implicit in real-sector projections and as an input for scenario analysis. Third, in conjunction with indicators on real variables and asset prices, flow-of-funds analysis provides additional insights into the working of the monetary transmission mechanism.

In the presence of continuous financial innovation and structural change, the analytical tools used in monetary analysis must be constantly refined, extended and improved in order to derive reliable and robust policy assessments. The ECB's monetary analysis therefore maintains a dynamic and constantly evolving analytical toolset.

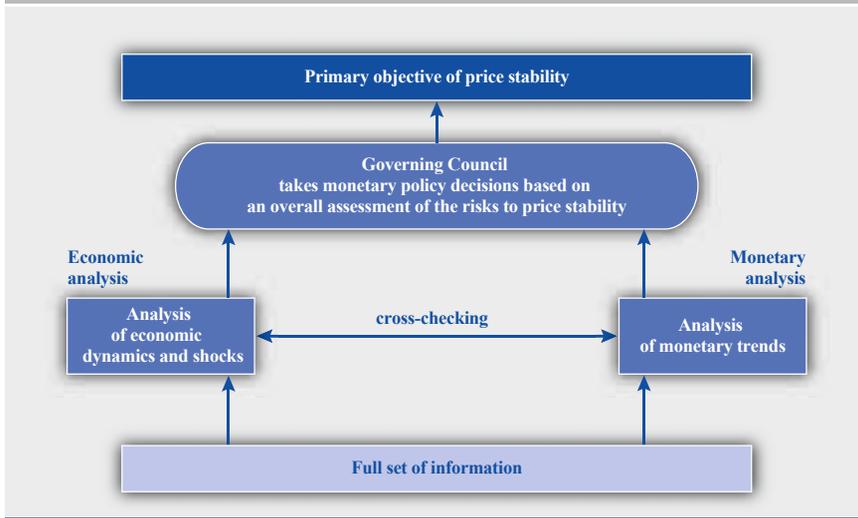
### **Cross-checking information from the two pillars**

Cross-checking the two analyses...

Regarding the Governing Council's decisions on the appropriate stance of monetary policy, the two-pillar approach provides a cross-check of the indications that stem from the shorter-term economic analysis with those from the longer term-oriented monetary analysis. As explained in more detail above, this cross-check ensures that monetary policy does not overlook important information relevant for assessing future price trends. All complementarities between the two

pillars are exploited, as this is the best way to ensure that all the relevant information for assessing price prospects is used in a consistent and efficient manner, facilitating both the decision-making process and its communication (see Chart 3.3). This approach reduces the risk of policy error caused by the over-reliance on a single indicator, forecast or model. By taking a diversified approach to the interpretation of economic conditions, the ECB's strategy aims at adopting a robust monetary policy in an uncertain environment.

Chart 3.3 The stability-oriented monetary policy strategy of the ECB



### 3.6 MONETARY POLICY, FINANCIAL STABILITY AND ASSET PRICES

#### Financial stability and price stability

Central banks' role in promoting financial stability

Some central banks play an important role in promoting financial stability. Price stability is now the primary objective of most central banks in the world, whereas responsibility for financial stability is, in most instances, less formalised or has been assigned to the government sector. Those central banks with an explicit mandate for financial stability may need to use their monetary policy instruments in order to achieve this goal regardless of potential trade-offs with their price stability objective. Regarding the ECB's monetary policy, the contribution to financial stability is subordinated to the objective of price stability (see Chapter 1). This assignment reflects the view that the maintenance of price stability is ultimately the best contribution monetary policy can make in support of financial stability.

Price stability is a precondition for financial stability. At the same time, by ensuring an orderly functioning of the transmission mechanism of monetary policy, financial stability helps a central bank to foster price stability. Hence, from a longer-term perspective, financial stability and price stability are mutually reinforcing policy objectives. At shorter horizons, financial stability and price stability may not always go hand in hand. Even in an environment of price stability, financial imbalances may evolve and pose a challenge to the maintenance of price stability. In the presence of asset price bubbles, central banks must adopt a longer time perspective in their monetary policy response. A medium-term orientation helps policy-makers to capture the longer-lasting nature of the shock and to formulate a monetary policy response which “leans against” accumulating asset price imbalances. By contrast, a policy framework with a pre-specified, fixed-term policy horizon could lead policy-makers to adopt a too

Financial stability and price stability

short-sighted perspective of the risks to price stability, and possibly to destabilise inflation expectations.

### Central banks' response to asset prices

Asset price bubbles...

At times, asset prices seem to rise beyond levels that are considered consistent with an appropriate valuation of the underlying asset. Such developments may indicate the existence of a “bubble” in the asset market, i.e. a rapid and sustained increase in prices that is bound to revert – possibly in a disruptive manner – at some time in the future. When asset price bubbles emerge, the information content of asset prices becomes blurred. In normal times, asset prices are very important information variables. Asset prices are inherently forward-looking variables, in the sense that they are determined mainly by market participants' expectations of the future evolution of their underlying pay-offs. But, when a bubble forms, expectations of the productive potential of the underlying asset might come to reflect excessively optimistic beliefs.

...may threaten the economy...

The formation of bubbles can distort the allocation of resources in the economy and harm macroeconomic stability for a prolonged period of time. Given its implications for macroeconomic stability, an asset price collapse – when expectations of excessive returns are sharply corrected – can mark the beginning of periods of economic contraction. Whenever the building-up of a bubble is associated with excess credit and liquidity creation, asset price crashes can become the cause of deflationary trends. Following the collapse of an asset price bubble, the economy may undergo an extended period of adjustment with below-average growth rates until it stabilises.

Asset price bubbles therefore pose an important challenge for the monetary policy strategy of a central bank. In order to detect a speculative bubble, it is necessary to have a good understanding of what the “correct” valuation of assets is likely to be. Such benchmark scenarios are normally subject to considerable uncertainty. Against this background, it may be difficult for policy-makers to identify asset price bubbles in real time. This holds especially true in the nascent stage of a bubble. As a result, asset price bubbles can often only be identified with some degree of confidence ex post.

...and are difficult to identify in real time

While the above difficulties in detecting bubbles are certainly serious, economic history suggests that concomitant and mutually reinforcing signs of “excesses” may sound an alarm bell that an asset price bubble is forming. For example, aggregate indicators of monetary and financial imbalances can provide evidence that helps assess the sustainability of an asset price boom. Among these latter indicators, intense empirical research has identified a number of monetary and financial variables that seem to have a clear correlation with asset price inflation, particularly during asset price bubbles that end in financial distress. Of these variables, the volume of aggregate credit demonstrates a fairly systematic leading relationship with episodes of asset price turbulence.

Indicators of emerging financial imbalances

The literature has discussed several approaches by which a central bank could respond to asset price bubbles. The most radical approach is to include asset prices directly in the price index defining price stability. Targeting asset prices in a similar way to consumer prices – whether by inclusion in a

Monetary policy responses to asset price bubbles

broadened price index or otherwise – is, however, not a reasonable approach. It would most likely lead to a policy whereby the bubble is pricked by monetary policy, which would inject unnecessary instability into the economy. A further option, which was supported by many central bankers prior to the global financial crisis, is to refrain from using monetary policy to address an asset price bubble but instead “clean up” its effects after it has burst.

**“Pricking” bubbles can be costly**

The option – “pricking” bubbles by means of monetary policy – is not viable for a stability-oriented monetary policy. Such an approach would require a strong tightening of the policy stance in order to counter speculation when a bubble is detected. It would also adversely affect growth perspectives, and may therefore pose serious risks for the entire economy. Moreover, a bubble could initially prove resilient to aggressive interest rate hikes, thus increasing the risk that monetary policy overreacts. Similarly, experience gained during the financial crisis has challenged the conventional wisdom according to which central banks should let asset price bubbles burst naturally, rather than acting to contain them, and then ease policy aggressively to repair its adverse macroeconomic fallout. This policy – if conducted systematically – can introduce a bias in the stance of monetary policy which can increase the probability of a bubble forming in the first place.

**The “leaning against the wind” approach...**

An approach which has gained increasing popularity over time is to “lean against the wind” of financial market excesses. Such an approach does not entail targeting any particular asset price or index. Rather, it aims to incorporate an analysis of risks to price stability over medium to long-term

horizons stemming from asset price developments into the overall comprehensive assessment supporting monetary policy decisions. Thus, the central bank would adopt a somewhat tighter policy stance in the face of an inflating asset market than it would have done if confronted with a similar macroeconomic outlook under more normal market conditions. In this way a central bank would, at an earlier stage of market dynamics, err on the side of caution by trying to avoid feeding the bubble with an accommodative policy.

An important argument in favour of the “leaning against the wind” approach is its implicit symmetry. In contrast to the “clean up” approach according to which monetary policy mainly acts in support of the economy when asset prices have sharply declined, interest rates would already be used in order to counter the build-up of an asset price bubble. Moreover, and unlike the “asset price targeting” approach, the policy reaction would not be automatic but involve a degree of judgement concerning the source of the bubble and the state of the economy when the bubble occurs.

In this respect, the ECB’s two-pillar monetary policy strategy offers an appropriate framework to reveal the conditions and circumstances in which a sustained trend development in asset prices can have negative implications for macroeconomic stability. While the ECB does not target asset prices, it closely monitors phenomena – mounting excesses in the creation of money and credit – which, if detected in conjunction with sustained market dynamics, can reveal the nature of the financial facts and provide information on whether these financial facts should be taken into account in tracing out the policy course. Monetary analysis helps

**...has advantages**

**The ECB’s monetary policy strategy takes asset price developments into account**

to assess developments in asset prices and the degree to which they pose a risk to price stability in a more distant future. This is how elements of the “leaning against the wind” approach have been incorporated in the ECB’s strategy. Furthermore, a regular cross-check of the outcome of the economic analysis with that of the monetary analysis lengthens the horizon over which the ECB traces the likely developments in consumer prices. Thanks to the medium to long-term perspective provided by the monetary pillar and the systematic monitoring of monetary and credit developments conducted within the monetary analysis, the two-pillar strategy does not overlook the potential role of such developments as driving forces of consumer price inflation in the medium to long run.

### 3.7 TRANSPARENCY AND COMMUNICATION

#### Central bank independence, accountability and transparency

As explained in Chapter 1, there are good reasons to entrust the task of maintaining price stability to an independent central bank, which is not subject to potential political pressure. At the same time, in democratic societies, central bank independence needs to be balanced with accountability to the public and its elected representatives. Accountability can be understood as the legal and political obligation of an independent central bank to properly explain and justify its decisions to the citizens and their elected representatives, thereby holding the central bank responsible for fulfilling its objective. Accountability is a fundamental precondition for, and a core element of, democratic legitimacy. A clearly defined mandate

is the basis for the democratic legitimacy of delegating monetary policy to an independent central bank, and an overriding focus on the mandate of price stability enables the public to hold an independent central bank more easily accountable. In this sense, accountability imposes discipline on the central bank to perform its tasks with high levels of professionalism.

The appropriate channels for ensuring the accountability of a central bank depend on the institutional framework and on the bank’s mandate. As a body established by virtue of the Treaties, and acting within the limits of the powers conferred upon it, the ECB has the statutory task of maintaining price stability and of performing other central banking functions for the euro area as a whole. Therefore, the ECB is accountable first and foremost to EU citizens, and – more formally – to the European Parliament, which is the only European institution directly elected by EU citizens.

The ECB’s relationship with the European Parliament fully respects central bank independence. The Treaty on the Functioning of the European Union sets down a number of reporting requirements for the ECB (e.g. the presentation of the Annual Report by the President to the European Parliament and the EU Council) and provides that the President (and other Executive Board members on an ad hoc basis) may appear before the European Parliament, with a view to ensuring accountability (see Chapter 1).

A concept closely related to yet distinct from accountability is that of central bank transparency. Transparency can be defined as an environment in which the central bank provides the general

The ECB is accountable to EU citizens

The ECB’s relations with the European Parliament

Transparency

Independence and transparency

public and the markets with all relevant information on its strategy, assessments and policy decisions as well as its procedures, and does so in an open, clear and timely manner. Today, most central banks, including the ECB, consider transparency to be a crucial component of their monetary policy framework, emphasising the importance of effective communication and proper interaction with the public. Ultimately, all efforts to enhance transparency are aimed at ensuring that monetary policy is better understood by the public and therefore becomes more credible and effective.

able and willing to achieve its policy mandate, inflation expectations are well anchored. In this respect, frequent communication about the central bank's assessment of the economic situation is particularly useful. Furthermore, it is helpful for central banks to be open and realistic about what monetary policy can do and, even more importantly, what it cannot do (see Section 3.1).

Second, a strong commitment to transparency imposes self-discipline on policy-makers. This helps to ensure that their policy decisions and explanations are consistent over time. Facilitating public scrutiny of monetary policy actions enhances the incentives for the decision-making bodies to fulfil their mandates in an appropriate manner.

...imposes self-discipline on policy-makers...

Third, by publicly announcing its monetary policy strategy and communicating its regular assessment of economic developments, the central bank provides guidance to the markets so that expectations can be formed more efficiently and accurately. This helps the markets to understand the systematic response pattern of monetary policy to economic developments and shocks and thus to anticipate the broad direction of monetary policy over the medium term, making policy moves more predictable. Such predictability is important for the conduct of monetary policy: while central banks only directly control very short-term interest rates, the expected path of these rates over longer horizons and the premia for uncertainty are also significant for the transmission of monetary policy to the economy. If agents can broadly anticipate policy responses, this allows a rapid incorporation of any (expected) changes in monetary policy into financial variables. This in turn can shorten the process by which monetary policy is transmitted into investment and

...and provides guidance to the markets

What makes a central bank transparent?

First and foremost, transparency requires the central bank to clearly explain how it interprets its mandate and to be forthcoming about its policy goals. This helps the public to monitor and evaluate the central bank's performance. In addition, the central bank needs to explain the analytical framework used for its internal decision-making and its assessment of the state of the economy, and to frequently make clear the economic rationale underlying its policy decisions. In this respect, transparency can be enhanced by providing a systematic framework for both internal decision-making and external communication with the public, in particular by means of a publicly announced monetary policy strategy. The bank's overriding concern with regard to transparency must be the effectiveness of monetary policy in meeting its statutory objectives. Transparency can render monetary policy more effective for several reasons.

Transparency fosters credibility,...

First, being clear about its mandate and how it goes about fulfilling it helps a central bank to foster credibility. When a central bank is perceived as being

consumption decisions and accelerate any necessary economic adjustments, thus potentially enhancing the effectiveness of monetary policy.

### **The communication role of the ECB's monetary policy strategy**

**Presentation of monetary policy to the public...**

In order to promote a better understanding of monetary policy, the main aspects of the process of monetary policy-making should be made understandable for the general public. In practice, however, it is difficult to provide the public with a completely exhaustive and intelligible communication of all the detailed elements and aspects of the internal monetary policy-making process while at the same time ensuring that this information is properly understood.

**...needs to take into account the complexity of policy-making...**

Therefore, in presenting monetary policy to the public, various choices have to be made. Transparency means more than simply releasing information. It also requires structuring that information in such a way that it can be understood by the public. Transparency has helped to solidly anchor inflation expectations. By publicly announcing its monetary policy strategy and communicating its regular assessments of the risks to price stability in a transparent manner, the ECB has achieved a high degree of predictability, thus making monetary policy more effective. Indeed, the ability of financial

markets to predict monetary policy decisions has generally increased over the last decade. The ECB's transparent approach has enhanced the markets' understanding of monetary policy.

However, efforts to convey a clear message should not detract from the need to explain the actual nature of policy-making. Any communication must reflect the fact that monetary policy has to operate in a complex, uncertain and constantly evolving environment. The external communication of the ECB's monetary policy strategy places a premium on faithfully reflecting this environment. The external presentation of the ECB's strategy may be relatively complex compared with some other strategies (such as monetary targeting or inflation targeting, see Box 3.3), but it realistically reflects the diversified approach to monetary policy that the ECB has adopted for its internal decision-making. Effective communication also requires the central bank to address a variety of audiences and to use a variety of channels. To this end, in its communication activities, the ECB has gone beyond the formal requirements of the Treaty on the Functioning of the European Union in adopting additional means of ensuring accountability and transparency (see Box 3.8).

**...and be consistent with internal decision-making**

### Box 3.8 Key communication channels used by the ECB

The monthly press conferences held by the President and the Vice-President and the Monthly Bulletin are two of the most important communication channels used by the ECB. The President's introductory statement at the press conference provides a comprehensive summary of the policy-relevant assessment of economic developments. It is structured along the lines of the ECB's monetary policy strategy and its text is agreed by the Governing Council. The monthly press conference includes a question and answer session, which is attended by various media representatives from across the euro area and beyond, and provides a platform for a timely and even-handed explanation of monetary policy decisions to the public. Transcripts of the press conference are made available on the ECB's website only a few hours later. The press conference is therefore an effective means of presenting and explaining the discussions in the Governing Council and thus the monetary policy decision-making process.

The Monthly Bulletin provides the general public and the financial markets with a detailed and comprehensive analysis of the economic environment. It is usually published one week after the meeting of the Governing Council and contains the information that the Governing Council possessed when it took its policy decisions. The Monthly Bulletin also contains articles which provide insights into long-term developments, general topics or into the analytical tools used by the Eurosystem within the framework of the monetary policy strategy.

In addition, the President of the ECB appears four times a year before the European Parliament's Committee on Economic and Monetary Affairs. The President explains the ECB's policy decisions and then answers questions posed by Committee members. The Committee meetings are open to the public and the transcripts of the President's testimonies are subsequently published on the websites of both the European Parliament and the ECB. Other members of the Executive Board of the ECB also appear before the Committee.

The members of the Governing Council take on numerous public engagements. Speeches by the President and other members of the Executive Board and Governing Council are important tools for explaining the ECB's views to the public. Another major channel for reaching international as well as local target groups is interviews granted by Governing Council members. The ECB also receives a large number of visits from members of the general public as well as experts from a variety of institutions. It is committed to open dialogue with the academic world. Research results of a technical nature and policy-related studies of general interest are published by staff members in the ECB's Working Paper and Occasional Paper series respectively.

Finally, the transparency of monetary policy also requires that the statistical data collected by the central bank (see Box 3.4) be published, once their reliability has been confirmed. The timely publication of the data enables the ECB to share with the public the information it possesses on economic developments in the euro area and thereby facilitates the communication of monetary policy decisions by the Governing Council.

Given that the Eurosystem is obliged to communicate in a multicultural and multilingual environment, the NCBs are essential players in the communication strategy. They maintain close contact with national and regional audiences, translating the policy signals into different languages and tailoring them to the national context.

### 3.8 THE ECB'S MONETARY POLICY STRATEGY: A GUIDEPOST IN THE FINANCIAL CRISIS

#### The ECB's response to the financial crisis

A good strategy should be appropriate both in normal times and when policy-makers face heightened uncertainty. During the financial crisis, the ECB's monetary policy strategy continued to perform its role as a guidepost for monetary policy decisions. The experience gained throughout the crisis has demonstrated the robustness and effectiveness of the two-pillar framework. It enabled the Governing Council to adopt a broad set of measures and to focus on price stability over the medium term. Indeed, the main elements of the strategy have provided useful guidance in formulating and explaining the ECB's monetary policy since the introduction of the euro (see Chapter 5).

#### Non-standard measures

In response to the financial crisis, the Eurosystem has taken measures that are unprecedented in nature, scope and magnitude. They represent an extraordinary response to exceptional circumstances in a context of unusually high uncertainty and instability in financial markets. In addition to conventional interest rate cuts to historically low levels, the Governing Council decided to adopt non-standard measures comprising Enhanced Credit Support and the Securities Markets Programme (see Box 5.1).

#### The ECB's exit strategy

The ECB's formal exit strategy comprises a set of principles to guide it in phasing out the various non-standard measures adopted during the financial crisis. An accommodative monetary policy for an overly long period risks the emergence of inflationary pressures

in the future and also paves the way for imbalances in the financial markets. Against the background of extremely low interest rates and abundant liquidity, the central bank's credible commitment to unwind the standard and non-standard measures once conditions returned to normal was of the essence. Indeed, it was emphasised by the ECB that the non-standard measures were designed with exit considerations in mind. At the same time, to avoid premature expectations of an exit, the ECB stressed that having an exit strategy in place was not to be confused with activating this exit. The ECB also explained in detail the rationale underlying the introduction and phasing-out of its non-standard measures.

#### The ECB's communication during the financial crisis

As explained in Section 3.7, communication is an important element of the ECB's monetary policy strategy. As an essential tool for managing the expectations of the private sector, it makes a significant contribution to enhancing the effectiveness and credibility of monetary policy. This is particularly important during periods of heightened uncertainty. Throughout the financial crisis and in its aftermath, the aim of the ECB's communication has been to explain the reasoning behind the exceptional measures introduced and to contribute to restoring private sector confidence in the economy and the functioning of markets. In this respect, the ECB has provided timely and factual information in order to be as transparent as possible given the extraordinary circumstances. The ECB's communication since the onset of the financial turmoil in August 2007 has largely contributed to keeping longer-term inflation expectations in the euro area firmly anchored at levels

Communication as a tool to preserve confidence

consistent with the ECB's definition of price stability (see Chart 3.4).

### Cornerstones of the exit strategy

The ECB has communicated that its exit from the non-standard measures relies on four cornerstones.

One cornerstone of the exit strategy is the close link to the ECB's monetary policy strategy and the primary objective of price stability. This implies that the non-standard measures could be maintained as long as significantly abnormal tensions, credit distortions and the impairment of the monetary policy transmission mechanism persist. As soon as their continuation poses a threat to the achievement of price stability, however, their prompt withdrawal is unavoidable.

A second cornerstone is the forward-looking initial design of the measures. All non-standard measures are of a temporary nature and, to a certain degree, have built-in and self-correcting

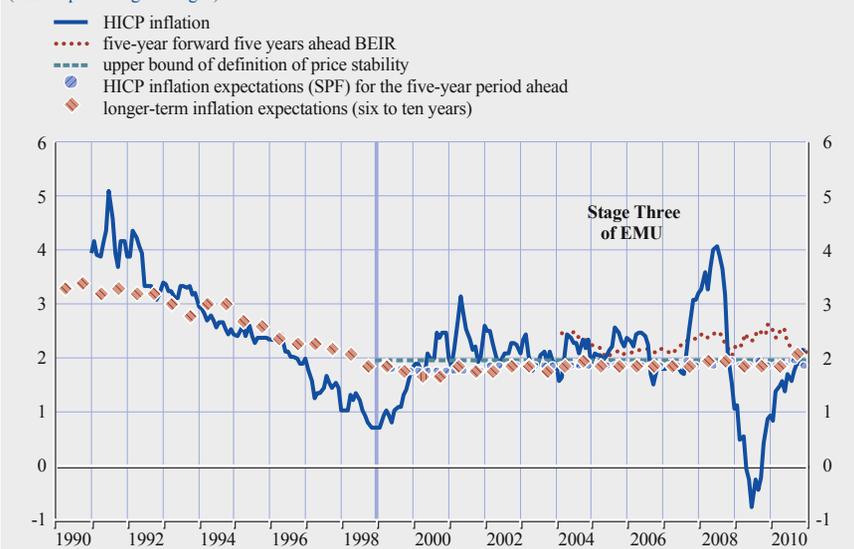
mechanisms. The overwhelming majority of measures were designed to phase out automatically unless expressly maintained.

The third conceptual cornerstone of the exit strategy is the ECB's permanent ability to act, i.e. the technical and institutional capability to take appropriate decisions and to implement them whenever circumstances warrant. This condition is supported by the operational framework of the Eurosystem and the institutional independence provided by the Treaties.

The fourth cornerstone is the credibility of the Eurosystem and its reputation for acting when deemed appropriate. The ECB has earned this reputation thanks to its clear track record established over the first decade of EMU. The ECB's credible commitment to maintaining price stability helped to stabilise inflation expectations in the euro area throughout the crisis.

Chart 3.4 Inflation expectations in the euro area

(annual percentage changes)



Sources: ECB, Eurostat, Reuters and Consensus Economics.

Note: BEIR refers to break-even inflation rate.



## 4 MONETARY POLICY IMPLEMENTATION

This chapter explains how the Eurosystem implements monetary policy decisions using its monetary policy instruments. The first section gives an overview of the objectives and general principles that govern the functioning of the Eurosystem's operational framework. The second section briefly describes the main monetary policy instruments (open market operations, the minimum reserve system and the standing facilities), while the subsequent sections examine these in greater detail and present the interaction between the monetary policy instruments and the banks' liquidity needs in the context of a central bank balance sheet. The final section provides a brief assessment of the operational framework's performance in the first 12 years of the single monetary policy.

### 4.1 OBJECTIVES AND GENERAL PRINCIPLES BEHIND THE DESIGN OF THE OPERATIONAL FRAMEWORK

The money market and the transmission of monetary policy

As discussed in Chapter 3, short-term money market rates play a pivotal role in the transmission of monetary policy. By steering such rates, monetary policy exerts significant influence over short-term nominal market interest rates and, through various channels, over the spending decisions of companies and households, monetary and financial developments and, ultimately, the price level.

The operational framework...

In order to achieve its primary objective of maintaining price stability for the euro area as a whole, the Eurosystem uses a set of monetary policy instruments and procedures. These provide the operational framework for the implementation of monetary policy decisions in practice.

...and the monetary policy strategy

The operational framework and the monetary policy strategy each have a specific role in the implementation of monetary policy. The strategy determines which level of money market interest rates is required to maintain price stability over the medium term,

whereas the operational framework determines how to achieve this interest rate level using the available monetary policy instruments and procedures.

A central bank steers short-term money market rates by signalling its monetary policy stance through its decisions on key interest rates and by managing the liquidity situation in the money market. The central bank, as the sole issuer of banknotes and bank reserves, is the monopoly supplier of the monetary base. The monetary base of the euro area consists of currency (banknotes and coins) in circulation, the reserves held by counterparties with the Eurosystem and recourse by credit institutions to the Eurosystem's deposit facility. These items are liabilities on the Eurosystem's balance sheet. Reserves can be broken down further into required and excess reserves. In the Eurosystem's minimum reserve system, counterparties are obliged to hold reserves with the national central banks (NCBs) (see Section 4.3). In addition to these required reserves, credit institutions usually hold only a small amount of voluntary excess reserves with the Eurosystem. This may, however, be different in periods

The functions of the operational framework include steering short-term interest rates and managing liquidity, ...

of acute financial market tensions. By virtue of its monopoly, a central bank is able to manage the liquidity situation in the money market and influence money market interest rates. Broadly speaking, the Eurosystem allocates an amount of liquidity that allows euro area credit institutions to fulfil their liquidity needs at a price that is in line with its signalled policy intentions, as reflected in the key interest rates set by the ECB.

...signalling the monetary policy stance, ...

In addition to steering interest rates by managing liquidity, a central bank can also signal its monetary policy stance to the money market. To signal a change in the monetary policy stance, a central bank usually changes the conditions under which it is willing to enter into transactions with credit institutions. The most obvious of these are the key interest rates set by the central bank.

...and ensuring an orderly functioning of the money market

In its operations, a central bank also aims to ensure an orderly functioning of the money market and to help credit institutions to meet their liquidity needs in a smooth manner. This is achieved by providing regular refinancing to credit institutions, as well as facilities that allow them to deal with end-of-day imbalances and transitory liquidity fluctuations.

The key principles of the operational framework are operational efficiency, ...

The operational framework of the Eurosystem is based on a number of guiding principles. These principles act in a complementary and mutually reinforcing manner. The overriding principle is operational efficiency. This can be defined as the capacity of the operational framework to enable monetary policy decisions to feed through as precisely and as quickly as possible to short-term money market rates. These in turn affect the price level through the various channels of

the monetary policy transmission mechanism. In other words, operational efficiency ensures the signalling and transmission of monetary policy.

As regards effective signalling, the operational framework needs to allow the determination of the monetary policy stance to be kept separate from liquidity management. Specifically, this implies a strict distinction between, on the one hand, monetary policy decisions that are geared towards the maintenance of price stability and, on the other hand, liquidity operations intended to keep market interest rates close to the level determined by the monetary policy stance.

...separation between monetary policy formulation and implementation, ...

To ensure the efficient transmission of monetary policy, the operational framework has to be consistent with the principles of a market-oriented economy in which competition is key to ensuring the efficient allocation of resources. This principle is enshrined in the Treaty on the Functioning of the European Union. Article 127 of the Treaty states that, in pursuing its objectives, the Eurosystem "... shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources ...". The proper functioning of the interbank market is vital to the transmission of monetary policy from the very short end of the money market to the real economy and prices.

...and market orientation

Other important principles are equal treatment of financial institutions and the harmonisation of rules and procedures throughout the euro area. Given the area-wide focus, credit institutions must be treated equally across the euro area, irrespective of their size or location. This harmonisation of rules and procedures aims to ensure equal treatment by providing identical

Other guiding principles are equal treatment, harmonisation, ...

conditions for all credit institutions in the euro area in connection with transactions with the Eurosystem.

...simplicity, transparency, continuity, safety and cost efficiency...

The operational framework also needs to be consistent with the principles of simplicity, transparency, continuity, safety and cost efficiency. Simplicity and transparency ensure that financial market participants understand the intentions behind monetary policy operations. The principle of continuity requires the avoidance of frequent

and major adjustments in instruments and procedures, so that central banks and their counterparties can rely on past experience when participating in monetary policy operations. The principle of safety requires the Eurosystem's financial and operational risks to be kept to a minimum, while cost efficiency should ensure low operational costs for both the Eurosystem and its counterparties arising from the operational framework.

**Table 4.1 Eurosystem monetary policy operations**

Monetary policy operations	Type of transaction <sup>1)</sup>		Maturity	Frequency
	Liquidity-providing	Liquidity-absorbing		
<b>Open market operations</b>				
Main refinancing operations	• Reverse transactions	–	• One week <sup>2)</sup>	• Weekly
Longer-term refinancing operations	• Reverse transactions	–	• Three months	• Monthly
Fine-tuning operations	• Reverse transactions • Foreign exchange swaps	• Reverse transactions • Collection of fixed-term deposits • Foreign exchange swaps	• Non-standardised	• Non-regular
Structural operations	• Reverse transactions	• Issuance of ECB debt certificates	• Standardised/ non-standardised	• Regular and non-regular
	• Outright purchases	• Outright sales	–	• Non-regular
<b>Standing facilities</b>				
Marginal lending facility	• Reverse transactions	–	• Overnight	• Access at the discretion of counterparties
Deposit facility	–	• Deposits	• Overnight	• Access at the discretion of counterparties

1) See Box 4.3 for descriptions of the various types of open market transaction.

2) The maturity has been one week since 10 March 2004. Prior to that date it was two weeks (see Box 4.2).

...as well as decentralised implementation

Finally, one principle that is specific to the Eurosystem is the decentralisation of the implementation of monetary policy. In accordance with this principle, the Eurosystem's monetary policy operations are normally implemented through the NCBs, which means that the ECB coordinates the operations, while the transactions are carried out by the NCBs.

## 4.2 OVERVIEW OF THE EUROSISTEM'S OPERATIONAL FRAMEWORK

The Eurosystem's operational framework is described in greater detail in the ECB publication entitled "The implementation of monetary policy in the euro area – General documentation on Eurosystem monetary policy instruments and procedures".

Open market operations

The Eurosystem uses two types of operation: open market operations and standing facilities. Table 4.1 provides an overview of the essential features of these operations. The most important operations are open market operations. This is the term used for operations that

are conducted on the initiative of the ECB, usually in the money market. As described in Section 2.6, "money market" refers to the market in which the maturity of transactions is generally less than one year. Open market operations include main refinancing operations (MROs), longer-term refinancing operations (LTROs), fine-tuning operations (FTOs) and structural operations. These operations play an important role in steering interest rates, signalling the stance of monetary policy and managing the liquidity conditions for the euro area banking sector.

Main refinancing operations

MROs are the most important open market operations and represent the key monetary policy instrument of the Eurosystem. Through MROs, the Eurosystem lends funds to its counterparties. In order to protect the Eurosystem against financial risks, lending is always against adequate collateral. For more detailed information on the Eurosystem's counterparties and on the collateral required in its liquidity-providing operations, see Box 4.1.

### Box 4.1 Counterparties and collateral

#### 1. Counterparties

The Eurosystem's monetary policy framework is formulated with a view to ensuring the participation of a broad range of counterparties. Counterparties to Eurosystem monetary policy operations must fulfil certain eligibility criteria. These criteria are defined in such a way as to ensure equal treatment for institutions across the euro area and that counterparties fulfil certain operational and prudential requirements. The general eligibility criteria are uniform throughout the euro area.

To be an eligible counterparty, a credit institution must be subject to the Eurosystem's minimum reserve system and at least one form of harmonised European Union/European Economic Area (EU/EEA) supervision by national authorities, as well as being financially sound. Financially sound institutions operating in the euro area and subject to non-harmonised supervision by competent national authorities of a standard comparable to harmonised EU/EEA supervision may also be accepted as counterparties (e.g. branches

established in the euro area of institutions incorporated outside the EEA). In addition, counterparties must fulfil any operational criteria specified in the relevant contractual or regulatory arrangements applied by their NCB (or by the ECB), so as to ensure the efficient conduct of Eurosystem monetary policy operations. At the end of January 2011 there were 6,334 credit institutions established in the euro area. However, only 2,267 fulfilled the operational criteria for participation in open market operations, 2,395 the operational criteria for access to the marginal lending facility and 2,789 the operational criteria for access to the deposit facility.

The number of counterparties actually participating in open market operations is normally much lower than the number of eligible counterparties. In the second half of 2010 the number of counterparties participating in tenders for MROs averaged 145. The average number of counterparties participating in LTROs was 94.

The Eurosystem may select a limited number of counterparties to participate in FTOs. For foreign exchange swaps conducted for monetary policy purposes, the Eurosystem uses active players in the foreign exchange market which are established in the euro area.

A credit institution fulfilling the general eligibility criteria may access the Eurosystem standing facilities and participate in Eurosystem open market operations based on standard tenders through the NCB of the Member State in which it is incorporated. If a credit institution has establishments (a head office or branches) in more than one Member State, each establishment has access to these operations through the NCB of the Member State in which it is established. However, in each Member State, the bids of an institution may be submitted by only one establishment (either the head office or a designated branch).

In accordance with the provisions in the contractual or regulatory arrangements applied by the respective NCB or by the ECB, the Eurosystem may suspend, limit or exclude counterparties' access to monetary policy instruments on the grounds of prudence.

The Eurosystem implements its monetary policy operations in a decentralised manner. The decentralised approach has been very efficient and has run smoothly thanks to careful preparation and efficient information systems. The Eurosystem continues to benefit greatly from the close contacts which the NCBs have built up over the decades with their local counterparties.

## **2. Collateral**

The liquidity-providing operations of the Eurosystem are based on a broad range of assets that counterparties can use as collateral in their credit operations. Article 18.1 of the Statute of the ESCB, according to which the ECB and the NCBs are allowed to transact in financial markets by buying and selling underlying assets outright or under repurchase agreements, requires all Eurosystem credit operations to be based on adequate collateral.

In order to protect the Eurosystem from losses, ensure the equal treatment of counterparties and enhance operational efficiency, underlying assets provided by counterparties have

to fulfil certain criteria in order to be eligible for use in Eurosystem monetary policy operations. The Eurosystem accepts instruments issued by both private and public debtors as collateral in order to respect the principle of equal treatment.

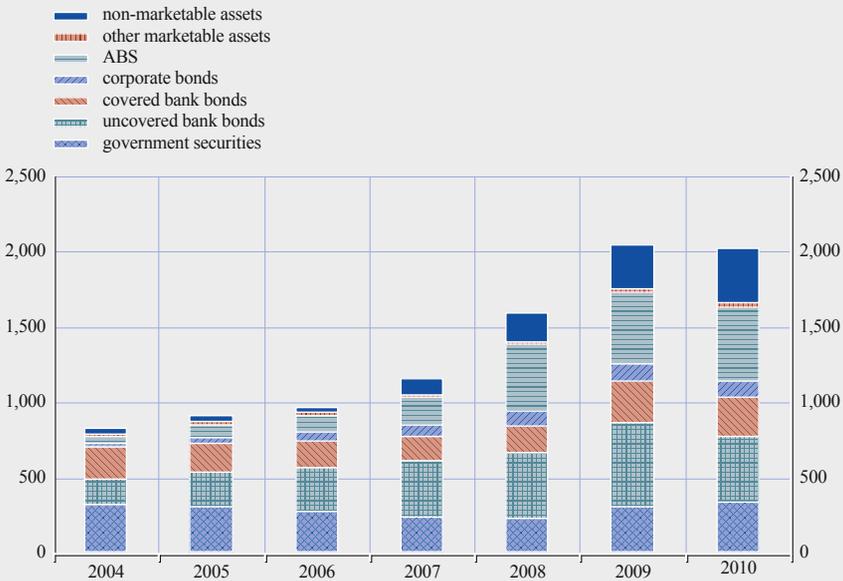
The Eurosystem has developed a single framework for eligible assets common to all Eurosystem credit operations. This single framework, also referred to as the “Single List”, entered into effect on 1 January 2007, replacing the two-tier system which had been in place since the start of Stage Three of EMU.

The single framework comprises two distinct asset classes – marketable assets and non-marketable assets. No distinction is made between the two asset classes with regard to their eligibility for the various types of Eurosystem monetary policy operation, except that non-marketable assets are not used by the Eurosystem for outright transactions. The assets eligible for Eurosystem monetary policy operations can also be used as underlying assets for intraday credit. The eligibility criteria for the two asset classes are uniform across the euro area.

Chart 4.1 shows that the amount of collateral submitted expanded substantially over the period from 2007 to 2009. This expansion may largely reflect the financial market tensions seen during this period. The largest increase was in structured finance products, such as asset-backed securities and covered bonds, which account for nearly 40% of total collateral submitted.

**Chart 4.1 Breakdown of assets submitted as collateral**

(EUR billions; annual averages)



Source: ECB.

Eurosystem counterparties may use eligible assets on a cross-border basis, i.e. they may obtain funds from the NCB of the Member State in which they are established using assets deposited in another Member State.

### 3. Risk control measures

All assets eligible for Eurosystem credit operations are subject to specific risk control measures in order to protect the Eurosystem against financial loss if underlying assets have to be realised (i.e. sold) owing to the default of a counterparty.

The Eurosystem applies specific risk control measures according to the type of underlying asset offered by the counterparty. The ECB determines the appropriate risk control measures for both marketable and non-marketable eligible assets. The risk control measures are broadly harmonised across the euro area to ensure consistent, transparent and non-discriminatory conditions for all types of eligible asset.

These risk control measures include valuation haircuts, meaning that the value of the underlying asset is calculated as the market value of the asset minus a certain percentage (the “haircut”). The Eurosystem also requires the haircut-adjusted market value of the collateral to be maintained over time by applying variation margins (marking-to-market). Finally, the risk control measures include limits on the use of unsecured debt instruments.

The Eurosystem can apply additional risk control measures if these are required to ensure adequate risk protection. On the grounds of prudence, the Eurosystem may also reject assets, limit the use of assets or apply supplementary haircuts to assets submitted as collateral in Eurosystem credit operations by specific counterparties.

#### Reverse transactions

Lending through open market operations normally takes place in the form of reverse transactions. In these reverse transactions, the central bank buys assets under a repurchase agreement or grants a loan against assets pledged as collateral (see Box 4.3). Reverse transactions are therefore temporary open market operations which provide funds for a limited, pre-specified period only.

#### Standing facilities

For the purpose of controlling short-term interest rates in the money market and, in particular, restricting their volatility, the Eurosystem also offers two standing facilities to its counterparties: the marginal lending facility and the deposit facility. Both facilities have an overnight maturity and are available to counterparties on their

own initiative. The interest rate on the marginal lending facility is normally substantially higher than the corresponding money market rate, and the interest rate on the deposit facility is normally substantially lower than the money market rate. As a result, credit institutions normally only use the standing facilities in the absence of other alternatives. As there are no limits on access to these facilities (except for the collateral requirements of the marginal lending facility), the rate on the marginal lending facility and the rate on the deposit facility normally provide a ceiling and a floor, respectively, for the overnight rate in the money market. These instruments are examined in more detail in Section 4.5.

**Chart 4.2 Key ECB interest rates and the EONIA since 1999**

(percentages per annum; daily data)



Source: ECB.

1) Before 28 June 2000 MROs were conducted as fixed rate tenders. Starting with the operation settled on 28 June 2000, and until the operation settled on 15 October 2008, MROs were conducted as variable rate tenders with a pre-announced minimum bid rate. Since the operation settled on 15 October 2008, MROs have been conducted as fixed rate tenders with full allotment. This procedure is scheduled to remain in place at least until the maintenance period ending on 12 July 2011. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids (see Section 4.4).

**Corridor of standing facility interest rates**

By setting the rates on the standing facilities, the Governing Council effectively determines the corridor within which the overnight money market rate can fluctuate. Chart 4.2 shows the development of key ECB interest rates since January 1999 and how the interest rates on the standing facilities have provided a ceiling and a floor for the overnight market interest rate, measured by the euro overnight index average (EONIA).

**EONIA, key ECB interest rates and the minimum reserve system**

Chart 4.2 shows that, in normal times, the EONIA has generally remained close to the rate on the MROs, thus demonstrating the importance of these operations as the main monetary policy instrument of the Eurosystem. This behaviour changed in October 2008, when the Eurosystem adopted non-standard measures to counter the

negative effects of the intensification of the financial crisis (see Box 5.1 and Chapter 5). Chart 4.2 also shows that the EONIA exhibits a pattern of occasional spikes. This pattern is related to the Eurosystem's minimum reserve system, as explained further in Section 4.3.

Finally, Chart 4.2 shows that the differences between the standing facility interest rates and the rate on the MROs were kept unchanged between April 1999 and October 2008 at  $\pm 1$  percentage point. The width of the corridor was then temporarily narrowed to  $\pm 0.5$  percentage point, before being widened again to  $\pm 0.75$  percentage point in May 2009, when the Governing Council decided to set the rate for the MROs at 1.0%.

### 4.3 MINIMUM RESERVES

Stabilisation of money market interest rates

The first key function of the minimum reserve system is to stabilise money market interest rates. This function is performed by the averaging provision. The averaging provision allows credit institutions to smooth out daily liquidity fluctuations (e.g. those arising from fluctuations in the demand for banknotes), since transitory reserve imbalances can be offset by opposite reserve imbalances generated within the same maintenance period.

The averaging provision implies that institutions can profit from lending in the market and run a reserve deficit whenever the shortest money market rates are above those expected to prevail for the remainder of the maintenance period. In the opposite scenario, they can borrow in the market and run a reserve surplus. In theory, this “intertemporal arbitrage” should ensure equality throughout the maintenance period between the current level of the shortest money market rates and their expected level at the end of the maintenance period. This mechanism stabilises the overnight interest rate during the maintenance period and makes it unnecessary for the central bank to intervene frequently in the money market.

The averaging provision works very smoothly during the maintenance period. However, at the end of the period, the reserve requirement becomes binding and banks can no longer transfer a liquidity surplus or deficit into the future. This explains the

spikes in the EONIA towards the end of each maintenance period, which can be seen in Chart 4.2.

A second important function assigned to the minimum reserve system is the enlargement of the structural liquidity shortage of the banking system. The need for credit institutions to hold reserves with the NCBs contributes to increasing the demand for central bank credit which, in turn, makes it easier for the ECB to steer money market rates through regular liquidity-providing operations.

Enlargement of the structural liquidity shortage

#### Description of the system

The ECB requires credit institutions in the euro area to hold compulsory deposits on accounts with the NCBs: these are called “minimum” or “required” reserves.<sup>8</sup> The amount of required reserves to be held by each institution is determined by its reserve base. The reserve base of an institution is defined in relation to the elements of its balance sheet. Table 4.2 shows the main liability items included in the reserve base.<sup>9</sup>

Required reserves and the reserve base

In order to determine an institution’s reserve requirement, the reserve base is multiplied by a reserve ratio. The ECB applies a uniform positive reserve ratio to most of the items included in the reserve base. This reserve ratio was set at 2% at the start of Stage Three of EMU. Most of the short-term liabilities on credit institutions’ balance sheets are subject to a positive reserve ratio. As can be seen from Table 4.2, neither long-term liabilities nor repurchase

Reserve ratio

<sup>8</sup> The legal framework for the Eurosystem’s minimum reserve system is based on Article 19 of the Statute of the ESCB. The details of the minimum reserve system are contained in several legal acts, the most important being Council Regulation (EC) No 2531/98 concerning the application of minimum reserves by the European Central Bank and Regulation (EC) No 2818/98 of the European Central Bank on the application of minimum reserves (ECB/1998/15), as amended.

<sup>9</sup> Liabilities vis-à-vis other credit institutions included in the list of institutions subject to the Eurosystem’s minimum reserve system and liabilities vis-à-vis the ECB and the NCBs are not included in the reserve base.

**Table 4.2 Credit institutions' liabilities included in the reserve base**

(stock levels as at the end of January 2011; EUR billions)

<b>(A) Liabilities to which a 2% reserve ratio is applied</b>	
Deposits (including overnight deposits, deposits with an agreed maturity up to two years and deposits redeemable at a period of notice of up to two years)	9,840.2
Debt securities issued with a maturity of up to two years (including money market paper)	651.6
Sub-total (A)	10,491.8
<b>(B) Liabilities to which a zero reserve ratio is applied</b>	
Deposits (including deposits with an agreed maturity of over two years and deposits redeemable at a period of notice of over two years)	2,780.6
Debt securities issued with a maturity of over two years	4,356.0
Repurchase agreements	1,395.8
Sub-total (B)	8,532.4
<b>Total reserve base (A)+(B)</b>	<b>19,024.1</b>

Source: ECB.

agreements are subject to a positive reserve ratio.

**Lump-sum allowance**

Institutions can deduct a uniform lump-sum allowance from their reserve requirement. Since the introduction of the euro they have been entitled to deduct €100,000. This allowance is designed to reduce the administrative costs arising from managing very small reserve requirements.

**Averaging provisions**

In order to meet their reserve requirements, credit institutions have to hold balances on their current accounts with the NCBs. In this respect, the Eurosystem's minimum reserve system enables counterparties to make use of averaging provisions. This means that compliance with reserve requirements is determined on the basis of the average of the daily balances on the institutions' reserve accounts over the maintenance period of around one month.

**Reserve maintenance period**

A maintenance period starts on the settlement day of the first MRO following the Governing Council meeting at which the monthly assessment of the monetary policy

stance is scheduled and ends on the day preceding the corresponding settlement day in the following month. A different schedule was in place before March 2004 (see Box 4.2). To help credit institutions prepare their reserves management, a maintenance period schedule for the calendar year, together with an indicative schedule for the MROs, is published three months before the start of each year.

**Remuneration of required reserves**

The Eurosystem aims to ensure that the minimum reserve system neither puts a burden on the banking system in the euro area nor hinders the efficient allocation of resources. For this reason, credit institutions' holdings of required reserves are remunerated. The remuneration corresponds to the average, over the maintenance period, of the "marginal rate of allotment" (weighted according to the number of calendar days) of the MROs (see also Section 4.4). As the marginal tender rates are normally very close to the short-term money market interest rates, the required reserves are normally remunerated at close to the market rate.

## Box 4.2 Changes to the maturity of the main refinancing operations and the reserve maintenance period as of March 2004

As noted in Section 4.4, there have been periods of tension in the past when pronounced speculation on an imminent interest rate change has affected counterparties' bidding in the MROs. On several occasions in spring 2000, when expectations were high that the key ECB interest rates were about to be increased, counterparties submitted increasingly excessive bids in the MROs which, at the time, were conducted as fixed rate tenders (leading to "overbidding"). Similarly, on occasion, expectations of an imminent cut in the key ECB rates led counterparties to submit bids that, on aggregate, fell short of the amount needed to ensure that the reserve requirements were met ("underbidding").

Both problems stemmed mainly from the fact that the timing of the reserve maintenance periods – which started on the 24th calendar day of each month and ended on the 23rd calendar day of the following month – was independent of the dates of the Governing Council meetings at which changes in key ECB rates were decided. Thus changes in key ECB interest rates could occur during a reserve maintenance period. In addition, the maturity of the weekly MROs (which was two weeks) was such that at least the last operation of each reserve maintenance period overlapped with the subsequent reserve maintenance period. As a result, bidding behaviour in MROs conducted at the end of a maintenance period could be affected by expectations of changes in key ECB interest rates in the next reserve maintenance period.

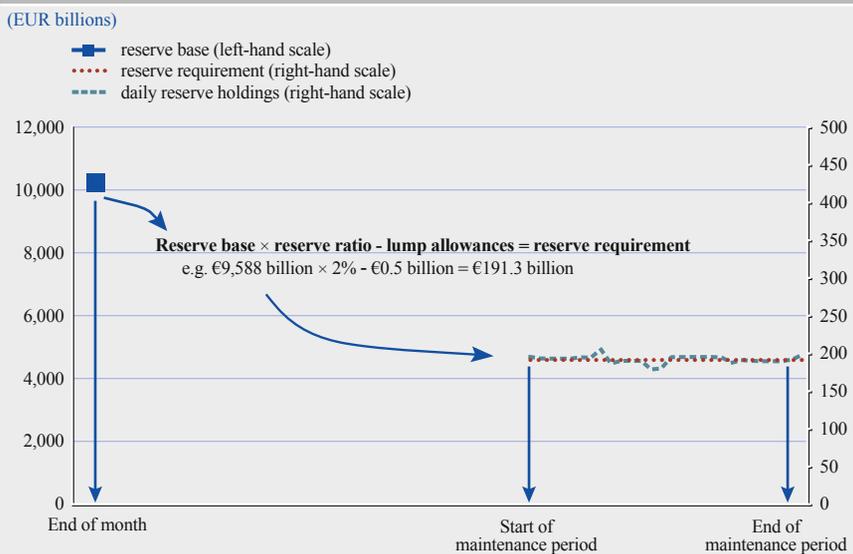
In response to this problem, the Governing Council decided on two measures which came into effect in March 2004 to prevent rate change speculation during a maintenance period from affecting very short-term money market conditions: (i) the timing of the reserve maintenance periods was changed, and (ii) the maturity of the MROs was shortened to one week. Specifically, it was decided that maintenance periods would start on the settlement day of the first MRO following the Governing Council meeting at which the monthly assessment of the monetary policy stance was pre-scheduled, and would end on the day preceding the corresponding settlement day in the following month. This direct link between the Governing Council meeting and the start of the reserve maintenance period should ensure that, as a rule, there can be no expectation that changes in key ECB rates might occur during a reserve maintenance period. The shortening of the maturity of the MROs was aimed at eliminating the spillover of interest rate speculation from one reserve maintenance period to the next. The objective of the combined measures was to contribute towards stabilising the conditions in which credit institutions bid in the MROs.

### Determination of reserve requirements

Chart 4.3 illustrates how the Eurosystem's reserve requirement is determined. In this example, the aggregate reserve base of the credit institutions is calculated on the basis of the liabilities on their balance sheets as at 31 May 2007. By applying the 2% reserve ratio to the relevant reserve base of €9,588 billion

and deducting the aggregate lump-sum allowance of €0.5 billion, the aggregate reserve requirement is determined for the maintenance period starting in the second subsequent calendar month (in this case, the period starting on 11 July and ending on 7 August 2007). The dark blue line in Chart 4.3 shows how

**Chart 4.3 The functioning of the Eurosystem's reserve requirement system**



Source: ECB.

Note: The example is based on data referring to the last maintenance period before the outbreak of the financial market tensions in August 2007, i.e. the period from 11 July to 7 August 2007. During the financial market tensions, the behaviour of market participants changed, as there was a desire to frontload the fulfilment of reserve requirements.

averaging provisions work in the Eurosystem's minimum reserve system. A credit institution's current account holding may fluctuate freely around its reserve requirement, but the average current account holding must be at least equal to the reserve requirement over the maintenance period as a whole. In the example, the average of the credit institutions' aggregate holdings on current accounts with the Eurosystem amounted to €192.0 billion, implying voluntary excess reserves of €0.7 billion over the aggregate reserve requirement of €191.3 billion.

#### 4.4 OPEN MARKET OPERATIONS

The Eurosystem's open market operations can be divided into the following four categories according to aims, regularity and procedures followed: main refinancing operations (MROs), longer-term refinancing

operations (LTROs), fine-tuning operations (FTOs) and structural operations (see Table 4.1 and Box 4.3).

#### Main refinancing operations

As mentioned above, MROs are the most important open market operations conducted by the Eurosystem. They play a pivotal role in steering interest rates, managing the liquidity situation in the market and signalling the stance of monetary policy through the main refinancing rate set by the Governing Council. They also normally provide the bulk of liquidity to the banking system. MROs are executed in a decentralised manner by the NCBs.

MROs are liquidity-providing operations that are conducted regularly on a weekly basis. They generally have a maturity of one week. (Before March 2004, the maturity of the MROs

Functions of MROs

Frequency and maturity

Four categories of open market operation

was two weeks, see Box 4.2). The maturity of the MROs and LTROs may also vary occasionally, depending on, inter alia, bank holidays in Member States.

#### Standard tenders

MROs are executed through standard tenders. In the context of the operational framework of the Eurosystem, “standard” indicates tender operations that are conducted in accordance with a pre-announced schedule, which is completed within a period of 24 hours from the announcement of the tender to the communication of the results. All counterparties fulfilling general eligibility criteria may participate in these operations. In principle, all credit institutions located in the euro area are potentially eligible counterparties of the Eurosystem (see Box 4.1).

#### Fixed and variable rate tenders

The Eurosystem may execute its tenders in the form of fixed rate or variable rate tenders. In the former, the ECB specifies the interest rate in advance and participating counterparties bid, the amount of money they wish to transact at the fixed interest rate. In the latter, counterparties bid both the amount of money they wish to transact and the interest rate at which they wish to enter into the transaction. Counterparties may submit multiple bids with different interest rate levels. In each bid, they must state the amount of money that they are willing to transact at the respective interest rate. The Governing Council may set a minimum bid rate for variable rate tenders in order to signal the monetary policy stance.

Under both tender procedures, the ECB decides the amount of liquidity to be provided. In a fixed rate tender, this normally implies a pro rata allotment to the participating banks, depending on the ratio between total bids and total

liquidity to be allotted. In a variable rate tender, the bids with the highest interest rates are satisfied first, followed by bids with successively lower rates, until the total amount of liquidity to be provided is exhausted. At the lowest accepted rate, the “marginal rate of allotment”, bids are satisfied pro rata in line with the ECB’s decision on the total amount of liquidity to be allotted. For each individual allotment, the interest rate is equal to the interest rate bid. In exceptional circumstances, the ECB may decide to allot all the liquidity requested by counterparties, i.e. to accommodate all bids in full. This full allotment procedure was introduced during the period of acute financial market tensions which began in 2007.

From the beginning of 1999 to June 2000 the Eurosystem conducted its MROs as fixed rate tenders. From 27 June 2000 the MROs were conducted as variable rate tenders with a minimum bid rate using a multiple rate procedure. Starting from the operation settled on 15 October 2008, the MROs were conducted as fixed rate tenders with full allotment. The reason for the change in 2000 was severe “overbidding” in the fixed rate MROs, which was the result of a wide and persistent spread between money market interest rates and the fixed rate applied to the MROs in early 2000. This spread was, in turn, largely driven by market expectations of further increases in ECB interest rates, especially in the spring of 2000. The spread between market rates and the ECB’s main refinancing rate made it very attractive for banks to obtain funds from the central bank and led to very high bids by the banks. In a variable rate tender, by contrast, banks have no incentive to overbid, since they would have to pay a

#### Use of tender procedures since 1999

higher price if they wanted to obtain more liquidity.

However, a different problem arose with variable rate tenders with a minimum bid rate. In a few cases, the aggregate of all bids submitted in the tender was lower than the amount needed for the smooth fulfilment of reserve requirements (“underbidding”). As these episodes also stemmed from significant interest rate speculation, the Governing Council decided to adjust its operational framework as of March 2004 (see Box 4.2). In October 2008 a fixed rate full allotment procedure was introduced for all refinancing operations for a certain period (see Box 5.1). This was intended to mitigate the adverse effects that dysfunctional money markets were having on the liquidity situation of solvent banks in the euro area and to support the flow of credit to firms and households.

These operations are aimed at providing longer-term liquidity to the banking system. This is deemed useful in order to prevent all the liquidity in the money market from having to be rolled over each week and to give counterparties access to longer-term refinancing. Like the MROs, these LTROs are conducted as standard tenders in a decentralised manner, and all counterparties fulfilling general eligibility criteria may participate (see Box 4.1).

Since it was not considered desirable for the Eurosystem to influence money market rates at more than one point along the maturity spectrum, the LTROs have been designed to ensure that the Eurosystem acts as a “rate taker” in these operations. In order not to blur the signal arising from the Eurosystem’s MROs, LTROs are normally executed in the form of pure variable rate tenders with pre-announced allotment volumes. The Governing Council normally indicates in advance the volume to be allotted in forthcoming tenders. Under exceptional circumstances, the Eurosystem may also execute LTROs through fixed rate tenders and may decide to accommodate all bids in the operations (full allotment procedure) (see Box 5.1).

Eurosystem as a “rate taker”

### Fine-tuning operations

The Eurosystem may also carry out open market operations on an ad hoc basis, i.e. FTOs. The frequency and maturity of such operations are not standardised. FTOs can be liquidity-absorbing or liquidity-providing. They are aimed at managing the liquidity situation in the money market and steering interest rates, in particular in order to smooth the effects on interest rates of unexpected liquidity fluctuations in the market. FTOs may be conducted on the last day

FTOs

Publication of liquidity needs

When it switched to variable rate tenders, the Eurosystem also started to announce, each week, the estimated liquidity needs of the banking system for the period until the day before the settlement of the next MRO. The publication of this estimate assists counterparties in preparing their bids for the forthcoming MRO. Section 4.6 describes the factors which determine the liquidity needs of the banking system.

### Longer-term refinancing operations

LTROs In addition to the weekly MROs, the Eurosystem also executes regular monthly LTROs with a three-month maturity. The Eurosystem may also conduct additional LTROs which can have other maturities (e.g. one maintenance period, six months or twelve months) (see Box 5.1).

of a reserve maintenance period to counter liquidity imbalances which may have accumulated since the allotment of the last MRO. FTOs are primarily executed as reverse transactions, but may also take the form of foreign exchange swaps or the collection of fixed-term deposits (see Box 4.3).

In view of their purpose, FTOs are normally executed through “quick” tenders. These take one hour from their announcement to the communication of the allotment results. FTOs can also be executed through bilateral procedures, where the Eurosystem conducts a transaction with a limited number of counterparties without a tender.

#### Box 4.3 Types of open market transaction

Reverse transactions are the main open market instrument of the Eurosystem and can be used for all kinds of liquidity-providing open market operation. The Eurosystem has four other instruments available to it for the conduct of FTOs and structural operations: outright transactions, the issuance of ECB debt certificates, foreign exchange swaps and the collection of fixed-term deposits (see Table 4.1).

##### 1. Reverse transactions

Reverse transactions refer to operations where the Eurosystem buys or sells eligible assets under repurchase agreements or conducts credit operations against eligible assets as collateral. Reverse transactions are used for MROs and LTROs. In addition, the Eurosystem can use reverse transactions for FTOs and structural operations.

Where reverse transactions take the form of a repurchase agreement, the difference between the purchase price and the repurchase price corresponds to the interest due on the amount of money borrowed or lent over the maturity of the operation, i.e. the repurchase price includes the interest to be paid. The interest rate on a reverse transaction in the form of a collateralised loan is determined by applying the specified interest rate on the credit amount over the maturity of the operation.

##### 2. Outright transactions

Outright open market transactions refer to operations where the Eurosystem buys or sells eligible assets outright on the market.

##### 3. Foreign exchange swaps

Foreign exchange swaps executed for monetary policy purposes consist of simultaneous spot and forward transactions in euro against a foreign currency. They can be used for fine-tuning purposes, mainly aimed at managing the liquidity situation in the market and steering interest rates.

##### 4. Collection of fixed-term deposits

The Eurosystem may invite counterparties to place remunerated fixed-term deposits with the NCB in the Member State in which the counterparty is established.

##### 5. Issuance of ECB debt certificates

The ECB may issue debt certificates with the aim of adjusting the structural position of the Eurosystem vis-à-vis the financial sector so as to create (or enlarge) a liquidity shortage in the market.

### High degree of flexibility

The potential need for rapid action in the event of unexpected market developments makes it desirable for the Eurosystem to retain a high degree of flexibility in the specification of FTOs. They are normally executed in a decentralised manner by the NCBs, but the Governing Council can decide, under exceptional circumstances, to have bilateral FTOs executed by the ECB. For operational reasons, only a limited number of selected counterparties may participate in FTOs. In order to facilitate access during the financial crisis, the list of counterparties eligible for FTOs was extended, increasing from around 140 to around 2,000 eligible counterparties.

### Structural operations

#### Structural operations

The operational framework also provides the Eurosystem with the possibility of conducting “structural operations”. These operations are executed at the initiative of the ECB to adjust the structural liquidity position of the Eurosystem vis-à-vis the financial sector, i.e. the amount of liquidity in the market over the longer term. These operations can be conducted using reverse transactions, outright operations or the issuance of ECB debt certificates (see Box 4.3).

In principle, structural operations can be liquidity-providing or liquidity-absorbing and their frequency can be regular or non-regular. Structural operations in the form of reverse transactions and the issuance of debt instruments are normally carried out through standard tenders. Structural operations in the form of outright transactions are normally executed through bilateral procedures.

## 4.5 STANDING FACILITIES

### Marginal lending and deposit facilities are...

As mentioned above, the Eurosystem also implements monetary policy by

setting the interest rates on its standing facilities. Standing facilities provide or absorb liquidity with an overnight maturity on the initiative of counterparties. Two standing facilities are available to eligible counterparties: the marginal lending facility and the deposit facility. In normal circumstances, there is little incentive for banks to use standing facilities, as the interest rates applied to them are normally unfavourable when compared with market rates.

Chart 4.4(a) shows the average daily use of the standing facilities from January 1999 to August 2008. Their use largely remained below €1 billion before the onset of the financial turmoil in August 2007, demonstrating that the facilities serve mainly to provide and absorb liquidity in exceptional circumstances. Chart 4.4(b) illustrates that the use of the standing facilities increased abruptly during the financial crisis as a number of banks preferred to keep more central bank reserves than required and to deposit the additional reserves in the deposit facility instead of lending them out to other banks. The reasons for this included uncertainty and perceived counterparty risk. Under the full allotment procedure introduced by the Eurosystem in October 2008, the total amount of liquidity provided by the Eurosystem is the sum of the amounts of liquidity requested by individual banks. As the overall amounts requested by banks were higher than the liquidity needs of the banking system during this period, the excess liquidity was deposited in the deposit facility. This points both to precautionary liquidity hoarding and to market segmentation (as the banks requesting liquidity may not be the same as those depositing excess liquidity with the Eurosystem).

...important in exceptional circumstances...

## Chart 4.4 Recourse to standing facilities

(EUR billions; averages of daily positions over the maintenance period)

■ marginal lending facility  
■ deposit facility

(a) From January 1999 to August 2008



(b) From September 2008 to January 2011



Source: ECB.

...and at  
the end of  
the reserve  
maintenance  
period

Chart 4.5(a) reflects the typical pattern of recourse to the standing facilities within a reserve maintenance period before the onset of the financial crisis. As can be seen from the chart, until August 2008 the use of the standing facilities was greatest at the end of the reserve maintenance period. This is due to the averaging mechanism of the minimum reserve system, which allows credit institutions to run daily liquidity deficits and surpluses,

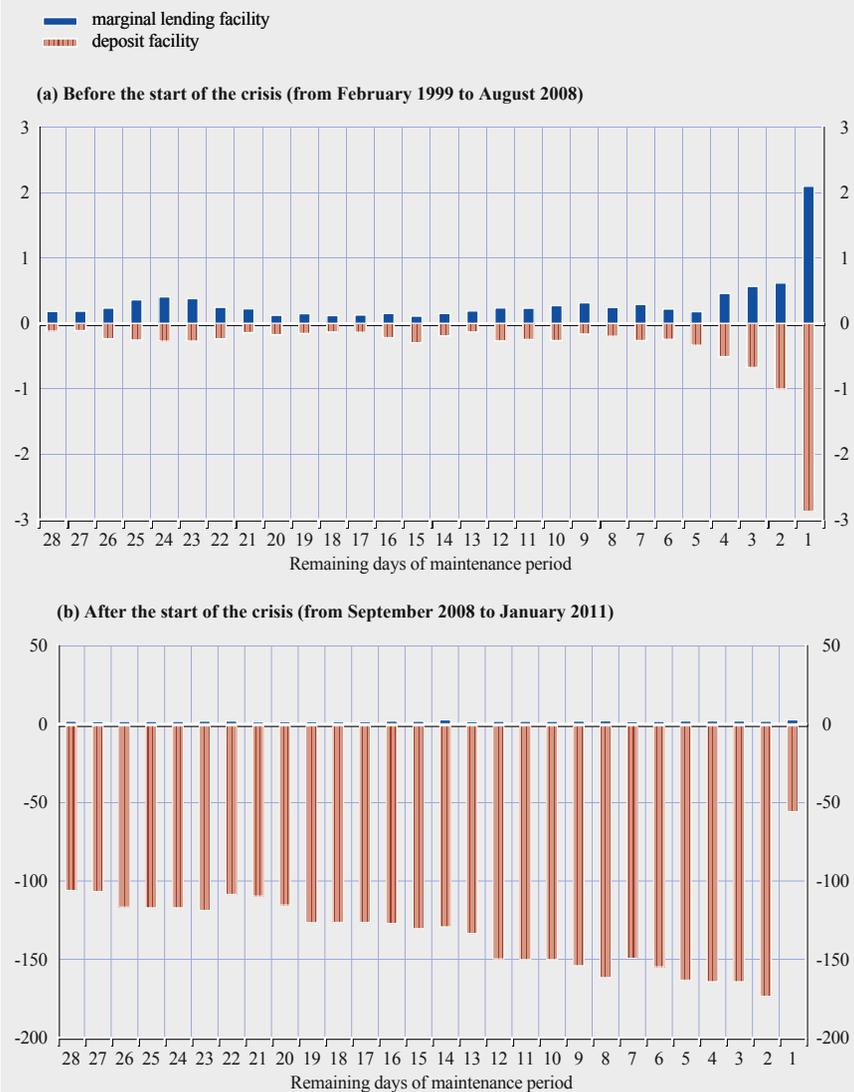
and either bring forward the fulfilment of reserve requirements or postpone it until the end of the maintenance period. As previously noted, reserve requirements become binding only on the last day of the maintenance period, when liquidity deficits or surpluses can no longer be offset by opposite imbalances within the same maintenance period. Chart 4.5(b) illustrates the typical pattern of recourse to the standing facilities since

the onset of the financial crisis. The most striking difference is the scale of use of the deposit facility, reflecting the very high amounts of excess liquidity. This indicates that the markets were not functioning properly. In addition, a pattern of

“frontloading” can be observed, whereby banks try to fulfil their reserve requirements early in the cycle and thus deposit less funds in the deposit facility at the beginning of the maintenance period than at the end.

**Chart 4.5 Recourse to standing facilities within a maintenance period**

(EUR billions; average of daily positions on the last 28 days of maintenance periods)



Source: ECB.

## 4.6 CENTRAL BANK LIQUIDITY AND LIQUIDITY NEEDS OF THE BANKING SYSTEM

### The Eurosystem as a supplier of liquidity

To sum up, the operational framework comprises a set of instruments and procedures which the Eurosystem uses to steer interest rates, manage liquidity in the money market and signal monetary policy intentions. The euro area banking system – on account of its need for banknotes and the obligation to fulfil reserve requirements, in particular – has an aggregate liquidity deficit in normal times and is reliant on refinancing from the Eurosystem. Thus the Eurosystem acts as a supplier of liquidity and can steer money market interest rates, as well as transmitting monetary policy impulses across the euro area.

### Consolidated balance sheet of the Eurosystem

The interaction between the Eurosystem and the banking system can be illustrated with the help of the consolidated balance sheet of the Eurosystem. Table 4.3 presents a simplified illustration of the structure of a standardised central bank balance sheet.

### Assets

On the assets side, there are three main liquidity-providing items: “refinancing to credit institutions”, “marginal lending facility” and “net foreign assets”. “Refinancing to credit institutions” refers to the outstanding amount of liquidity-providing open market operations. In the case of the Eurosystem, these operations always include MROs and LTROs. Any liquidity-providing FTOs and structural operations are also included under this item. “Marginal lending facility” refers to overnight credit provided by the central bank to those credit institutions that have recourse to this facility. “Net foreign assets” refers to assets in foreign currency owned by the central

bank, net of any central bank liabilities denominated in foreign currency.

On the liabilities side, there are five main items: “credit institutions’ holdings on current accounts”, “deposit facility”, “banknotes in circulation”, “government deposits” and “other factors (net)”. “Credit institutions’ holdings on current accounts” (also known as “reserves”) refers to balances held by credit institutions with the central bank in order to meet settlement obligations from interbank transactions and to fulfil reserve requirements. “Deposit facility” refers to the total overnight recourse to this standing facility. “Banknotes in circulation” indicates the value of the banknotes put into circulation by the central bank at the request of credit institutions. This is usually the largest item on the liabilities side. “Government deposits” reflects the existence of current account balances held by national treasuries with NCBs. Finally, “other factors (net)” is a balancing item encompassing the remaining items on the balance sheet.

### Liabilities

From an accounting point of view, the respective amounts of total assets and liabilities must always be equal. In order to understand how a central bank operates, it is convenient to split the balance sheet into three elements, as indicated by the lower three panels of Table 4.3. As shown in the table, the net amount of liquidity that is actually supplied by the central bank to credit institutions is the sum of two elements. The first element is made up of the “autonomous factors” (the sum of “banknotes in circulation” plus “government deposits” minus “net foreign assets” plus “other factors (net)”, which is the net effect of the remaining balance sheet items affecting money market liquidity). These factors influence

### Liquidity supply and demand

the liquidity of the banking system and are labelled “autonomous” in central bank jargon because they are not normally the result of the use of monetary policy instruments. Some of the autonomous factors are not under the control of the monetary authorities (“banknotes in circulation” and “government deposits”). Other factors, such as “net foreign assets”, can be controlled by the monetary authorities, but transactions in these assets are not normally related to monetary policy operations (except in the case of foreign exchange swaps; see Box 4.1). The second element is made up of credit institutions’ reserves (“credit institutions’ holdings on current accounts”). The sum of the autonomous factors plus the reserves equals the supply of liquidity through monetary policy operations (the sum of “refinancing to credit

institutions” plus “marginal lending facility” minus “deposit facility”).

Moving from this schematic analysis to the Eurosystem’s actual balance sheet, Table 4.4 shows the contributions of the main items to the banking system’s liquidity in the reserve maintenance period from 19 January 2011 to 8 February 2011. The bulk of the liquidity was provided through the MROs and LTROs. Additional liquidity was provided through other operations, notably the covered bond purchase programme (CBPP) and the Securities Markets Programme (SMP). Standing facilities normally have only a marginal impact on the banking system’s liquidity. Owing to the liquidity surplus of the banking sector in the context of credit operations at fixed rate with full allotment, banks

**Contributions of the main items**

**Table 4.3 Central bank balance sheet structure**

<b>A standardised central bank balance sheet:</b>	
<b>Assets</b>	<b>Liabilities</b>
Refinancing to credit institutions	Credit institutions’ holdings on current accounts (reserves)
Marginal lending facility	Deposit facility
Net foreign assets	Banknotes in circulation
	Government deposits
	Other factors (net)
<b>Can be rearranged as follows:</b>	
<b>Liquidity supply through monetary policy operations</b>	
refinancing to credit institutions	
+ marginal lending facility	
- deposit facility	
=	
<b>Autonomous factors</b>	
banknotes in circulation	
+ government deposits	
- net foreign assets	
+ other factors (net)	
+	
<b>Reserves</b>	
credit institutions’ holdings on current accounts	

have made larger recourse to the deposit facility than in normal times.

The second part of Table 4.4 shows the autonomous factors. The liquidity-absorbing effect of autonomous factors is mainly generated by banknotes in circulation and government deposits with the Eurosystem. Banknotes in circulation absorb the banking system's liquidity because they have to be obtained from the central bank, and credit institutions have to borrow funds from the central bank because of this. There is also a counter-effect on the banking system's liquidity relating to the net foreign assets held by the Eurosystem. Purchases of foreign assets by the Eurosystem inject liquidity into the banking system and reduce the

need for liquidity-providing monetary policy operations. Required reserves have a liquidity-absorbing effect which is similar in size to the effect of all the autonomous factors together. The difference between credit institutions' holdings on current accounts with the Eurosystem and reserve requirements makes up the excess reserves (which have generally been very low, at around 0.5% of required reserves in the euro area).

Charts 4.6 and 4.7 show how the main liquidity-providing and liquidity-absorbing factors developed from January 1999 to January 2011. Chart 4.6 shows that the bulk of the liquidity up to September 2008 was provided through the MROs, reflecting the key

Relative importance of liquidity-providing factors

**Table 4.4 Contributions to the banking system's liquidity**

(EUR billions; daily average stocks from 19 January 2011 to 8 February 2011)

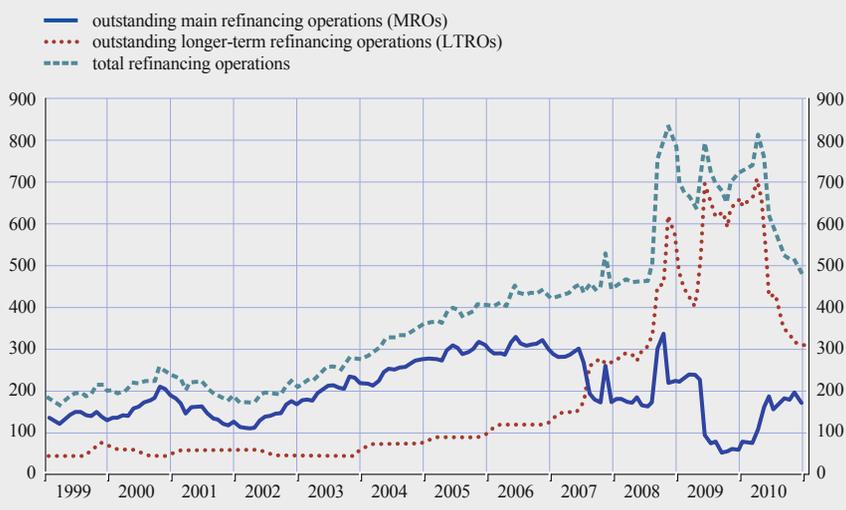
	<b>Liquidity-providing Assets</b>	<b>Liquidity-absorbing Liabilities</b>	<b>Net contribution</b>
<b>Monetary policy operations of the Eurosystem</b>			
Main refinancing operations	185.4	–	+185.4
Longer-term refinancing operations	318.2	–	+318.2
Other open market operations <sup>1)</sup>	137.2	81.3	+55.9
Standing facilities	0.1	39.2	-39.2
<b>Sub-total (a)</b>	<b>604.9</b>	<b>120.5</b>	<b>+520.4</b>
<b>Autonomous factors affecting the banking system's liquidity</b>			
Banknotes in circulation	–	822	-822
Government deposits with the Eurosystem	–	101.2	-101.2
Net foreign assets	549.7	–	+549.7
Other factors (net)	–	-66.7	+66.7
<b>Sub-total (b)</b>	<b>549.7</b>	<b>856.5</b>	<b>-306.8</b>
<b>Reserves = credit institutions' holdings on current accounts with the Eurosystem</b>			
Required reserves (c)			+212.3
Excess reserves (d)			+1.3
<b>Total (a)+(b) = (c)+(d)</b>			<b>+213.6</b>

Source: ECB.

1) "Other open market operations" include securities held for monetary policy purposes and foreign currency liquidity operations. The latter operations actually absorbed liquidity.

### Chart 4.6 Volume of main and longer-term refinancing operations

(EUR billions; averages of daily positions over maintenance period)

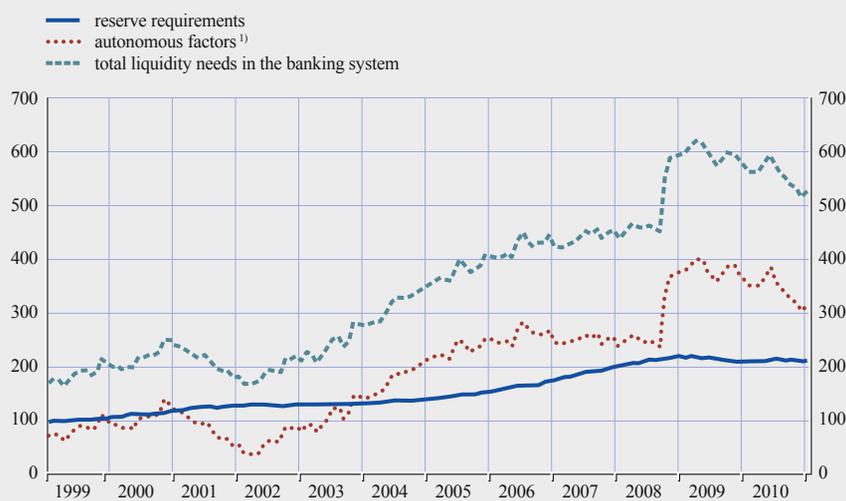


Source: ECB.

role played by this monetary policy instrument. Following the introduction of a fixed rate full allotment procedure from October 2008 onwards for all refinancing operations, the weight of the refinancing operations shifted towards LTROs. As can be seen from Chart 4.6, LTROs reached a volume of

### Chart 4.7 Required reserves and autonomous liquidity factors

(EUR billions, averages of daily positions over maintenance period)



Source: ECB.

1) Autonomous factors include banknotes in circulation plus government deposits plus other factors less net foreign assets.

€310 billion at the end of January 2011, compared with a volume of €172 billion for MROs at the same time.

Relative importance of liquidity-absorbing factors

Chart 4.7 shows the development of the two main factors that create a structural liquidity deficit in the banking system. Until 2004 reserve requirements usually accounted for more than half of the total liquidity needs of the banking system. From 2004 onwards, the total liquidity-absorbing effect of autonomous factors exceeded the effect from reserve requirements, mainly owing to the continued growth in the stock of euro banknotes.

#### 4.7 EXPERIENCE SINCE JANUARY 1999

Low volatility of short-term interest rates

The Eurosystem's operational framework has been functioning well since the start of Stage Three of EMU. The operational framework has generally allowed the ECB to steer liquidity conditions and short-term interest rates in a smooth fashion. The average volatility of short-term interest rates in the euro area money market since January 1999 has remained low by international standards. This low volatility of short-term money market rates was achieved with very little recourse to FTOs in normal times, i.e. almost entirely through a combination of a minimum reserve system with an averaging provision and weekly open market operations. Stable money market conditions are helpful for the efficient transmission of monetary policy to the economy. In addition, they reflect a high degree of credibility of the operational and liquidity management capabilities of the ECB.

Clear signalling of the monetary policy stance in normal times

The interest rate for the MROs signals the monetary policy stance in normal times. This system has worked well,

as indicated by the relatively small spread between the marginal rate of allotment and the minimum bid rate before August 2008.

Flexible operational framework

Finally, with both weekly MROs and monthly LTROs at the Eurosystem's disposal, as well as various other measures, the operational framework has met the two objectives of providing longer-term liquidity to credit institutions and allowing the Eurosystem to steer liquidity developments with sufficient precision in the short term. The operational framework has also proved robust when faced with exceptional challenges, e.g. the transition to the year 2000, and it has shown a very high degree of flexibility to deal with unforeseen circumstances, such as the terrorist attacks of 11 September 2001, the financial market turmoil that started in August 2007 and the subsequent financial crisis (see Box 5.1). For instance, since the turmoil started, the wide range of eligible counterparties for regular refinancing operations has allowed many counterparties to take part in refinancing operations. Also, overnight FTOs have been used to control short-term money market rates. Notably, on 9 August 2007, the day the financial turmoil set in, the ECB provided €95 billion of overnight credit, against collateral, to euro area banks at the then prevailing main refinancing rate to offset tensions in the short-term segment of the money market. More generally, during the turmoil, the Eurosystem initially adapted an intra-maintenance period pattern in the supply of liquidity, allowing banks to "frontload" reserves in the first half of the maintenance period and then compensate for this by holding lower levels of reserves in the second half. The Eurosystem also

increased the amount of liquidity provided in LTROs by introducing supplementary refinancing operations with maturities of three and six months (later extended to 12 months during the financial crisis).

# 5 THE CONDUCT OF MONETARY POLICY SINCE 1999

This chapter illustrates how monetary policy has been conducted in the euro area since 1999. The period has been challenging for the euro area, given that it was confronted with a host of economic and financial shocks, the nature, size and persistence of which varied over time. Against this backdrop, the Governing Council took its monetary policy decisions with a clear focus on the need to maintain price stability over the medium term.

## 5.1 INTRODUCTION

Priority for the maintenance of price stability over the medium term

Since the beginning of Stage Three of EMU in 1999, the conduct of monetary policy in the euro area has been guided by the overriding objective of maintaining price stability over the medium term. In assessing risks to price stability in the euro area, the Governing Council has always relied on the framework laid down in its monetary policy strategy, implying a comprehensive analysis of both economic and monetary developments in the euro area (see Chapter 3).

Frequent Governing Council meetings to assess the monetary policy stance

In the first years of Monetary Union, the Governing Council assessed the

monetary policy stance at meetings held every two weeks. In November 2001, however, the Governing Council decided that – as a rule – it would henceforth assess the monetary policy stance at its first meeting of the month. Accordingly, it was announced that interest rate decisions would normally be taken at that meeting, while the second meeting of the month would focus on issues related to the other tasks and responsibilities of the ECB and the Eurosystem.

Overall, six phases can be distinguished as regards the conduct of monetary policy (see Chart 5.1). The challenges faced by the single monetary policy

Six phases can be distinguished: transition to Monetary Union, period until mid-1999...

Chart 5.1 Key ECB interest rates in the six phases



Source: ECB.

during these six phases are explained in the next section. A first phase was the transition to Monetary Union: in response to downward risks to price stability, the Governing Council lowered the ECB's main refinancing rate by 50 basis points to 2.5% in April 1999.

Sixth, taking account of subdued inflationary pressures in a setting in which financial strains had weakened the economic outlook and significantly diminished upside risks to price stability, the Governing Council reduced the main refinancing rate rapidly by 325 basis points to 1% between October 2008 and May 2009.

...and a sixth phase starting in the autumn of 2008

In addition, the Governing Council has adopted a number of temporary non-standard measures, referred to as the Enhanced Credit Support and the Securities Markets Programme.

## 5.2 MAIN DEVELOPMENTS

### Phase I – Transition to Monetary Union (mid-1998 to mid-1999)

The convergence process leading to Stage Three of EMU was successfully completed when the ECB assumed responsibility for monetary policy in the euro area on 1 January 1999. Price stability had been achieved in the countries forming the euro area, allowing the Governing Council to start its operations at a time when interest rates were at low levels. The first interest rate on the main refinancing operations was set at 3%, with the rates on the marginal lending and deposit facilities set at 4.5% and 2% respectively. These rates, announced on 22 December 1998, followed the coordinated reduction on 3 December of key interest rates by all the NCBs of the countries set to adopt the euro from the outset.

Transfer of responsibility for monetary policy to the ECB

At the beginning of 1999, a combination of factors that had already been affecting the countries that were joining the euro area contributed to downward risks to price stability. HICP inflation was below 1% (see Chart 5.2) as a result of, in part, a significant drop in oil prices (see Chart 5.3) and

Reduction of key ECB interest rates in response to downward risks to price stability in early 1999

...mid-1999 to end-2000...

Second, in order to contain inflationary pressures against the backdrop of strong economic growth, increasing import prices and high monetary growth, the Governing Council raised the key interest rates by a total of 225 basis points in the period from November 1999 to October 2000. This brought the main refinancing rate to 4.75% in that month.

...early 2001 to mid-2003...

Third, in response to receding inflationary pressures in an environment of subdued economic growth, marked adjustments in financial markets and high geopolitical uncertainty, the Governing Council cut the key interest rates by a total of 275 basis points between May 2001 and June 2003, thereby reducing the main refinancing rate to 2%.

...mid-2003 to end-2005...

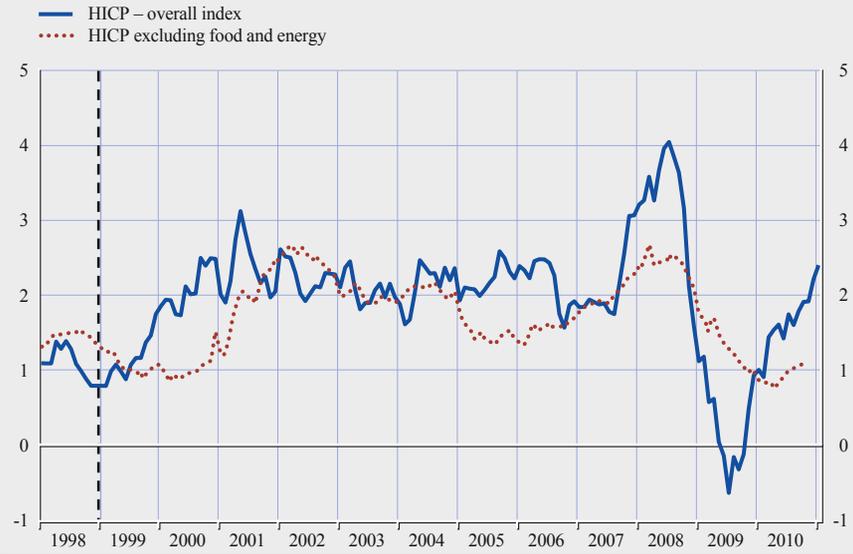
Fourth, given contained price pressures, the Governing Council then left the key ECB interest rates unchanged until December 2005.

...end-2005 to the summer of 2008...

Fifth, with inflation increasing against the background of sound economic growth and a rapid expansion of the supply of money and credit in the euro area, the degree of monetary policy accommodation was gradually reduced. With upside risks to price stability prevailing until mid-2008, the Governing Council raised the key interest rates by a total of 225 basis points, bringing the main refinancing rate to 4.25% in July 2008.

### Chart 5.2 HICP Inflation

(annual percentage changes)



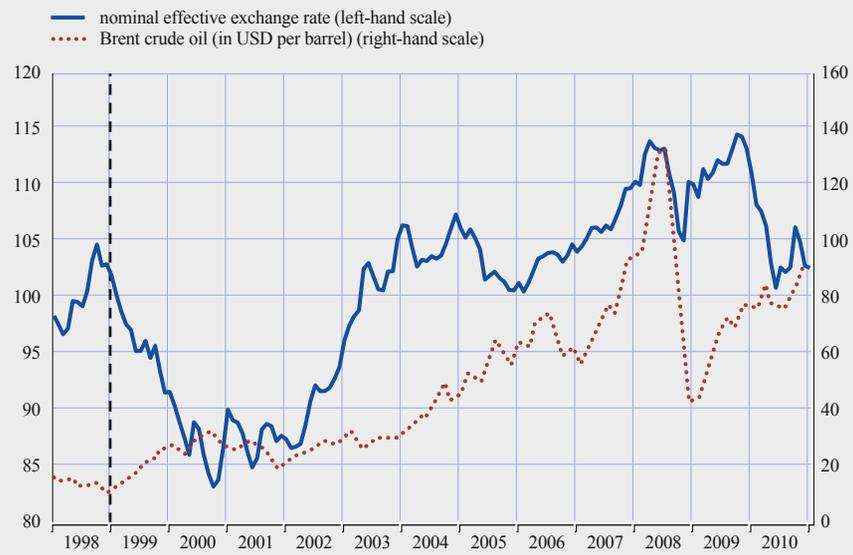
Source: Eurostat.

deregulation in the services sector. In this low-inflation environment, downside risks to economic growth emerged as a consequence of weaker

external demand stemming from the Asian crisis of late 1997 and the drop in confidence that followed the financial market turmoil after the Russian crisis

### Chart 5.3 Nominal effective exchange rate of the euro and oil prices

(monthly averages: index Q1 1999 = 100)



Sources: ECB and Thomson Reuters.

### Chart 5.4 M1 and loans to private sector



Source: ECB.

in the summer of 1998. Monetary developments were not seen to imply upward risks to price stability over the medium term (see Charts 5.4 and 5.5). Consequently, with risks to price stability on the downside, the key ECB

interest rates, i.e. the fixed rate on the Eurosystem's main refinancing operations, the interest rate on the marginal lending facility and the interest rate on the deposit facility, were reduced by 50 basis points on

### Chart 5.5 M3 growth



Source: ECB.

## Chart 5.6 Real GDP, industrial production and industrial confidence for the euro area

(industrial production and real GDP, annual percentage changes; industrial confidence, percentage balance)



Sources: Eurostat and European Commission Business and Consumer Surveys.

1) Deviations from the average since January 1985.

8 April 1999. As a result, the fixed rate in the Eurosystem's main refinancing operation stood at 2.5%.

### Phase 2 – Rates raised to contain inflationary pressures (mid-1999 to end-2000)

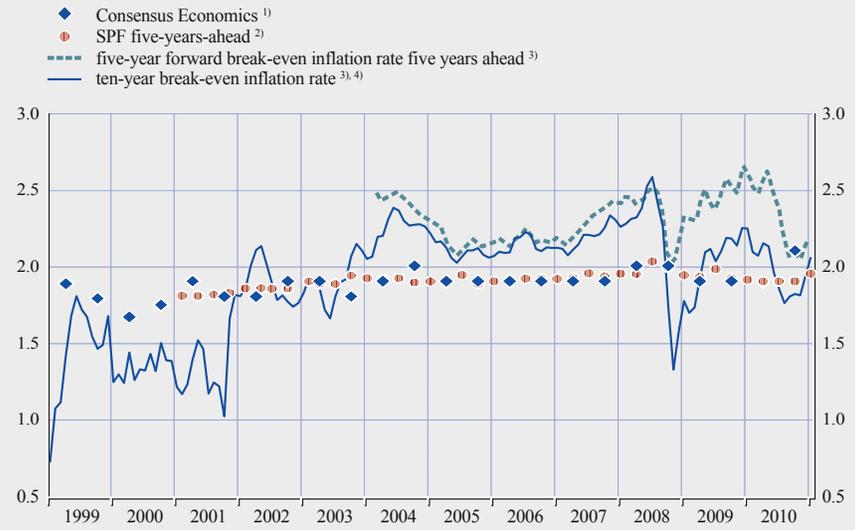
Gradually increasing price pressures in an environment of rapid economic growth (see Chart 5.6), a depreciation of the euro exchange rate (see Chart 5.3) and protracted monetary expansion were reasons for the Governing Council to raise rates by a total of 225 basis points between November 1999 and October 2000. As a consequence,

the minimum bid rate in the main refinancing operations of the Eurosystem reached 4.75% in October 2000. In particular, there were increasing concerns that inflationary pressures from import prices could have broadly based second-round effects via wage and price-setting behaviour, and might thus lead to an increase in the long-term inflation expectations of the public at large (see Chart 5.7). Another cause for concern was the progressive accumulation of liquidity, as indicated by the protracted expansion of the supply of money and credit.

Gradual increases in key ECB interest rates from end-1999 to late 2000

**Chart 5.7 Indicators of long-term inflation expectations in the euro area**

(annual percentage changes)



Sources: Thomson Reuters, EuroMTS, Consensus Economics and the ECB.

- 1) Survey of prominent financial and economic forecasters, as published by Consensus Economics.
- 2) Survey of Professional Forecasters conducted by the ECB on different variables at different horizons. Participants are experts affiliated with institutions based within the European Union.
- 3) The break-even inflation rate reflects the average value of inflation expectations over the given horizon. From 2004, it is a constant maturity break-even inflation rate, estimated from the euro area nominal and real government bond yield curves. Before 2004, it is calculated as the difference between the nominal yield on a standard bond and the real yield on an inflation indexed-linked bond, issued by the same issuer and with similar maturity.
- 4) The ten-year break-even inflation rate in the period from January 1999 to October 2001 is the ten-year break-even inflation rate for France, while that in the period from November 2001 to October 2010 is the ten-year break-even inflation rate for the euro area.

### Phase 3 – Downward adjustments to key ECB interest rates (early 2001 to mid-2003)

Key ECB interest rates reduced in response to receding price pressures between early 2001 and mid-2003...

Between early 2001 and mid-2003, the Governing Council reduced the ECB's key rates by a total of 275 basis points, bringing the main refinancing rate to 2% in June 2003. This was a reaction to the continued decline in inflationary pressures over this period, which had been triggered mainly by deteriorating prospects for economic growth in the wake of severe shocks that had hit the world economy and global financial markets. In particular, the terrorist attacks on the United States on 11 September 2001 led to high uncertainty and a loss of confidence across the globe. Indeed, this event had the potential to accelerate the downward

trend in economic activity and disrupt the functioning of financial markets.

Given the high uncertainty prevailing in the aftermath of the terrorist attacks of September 2001, the strong monetary expansion was not seen as an indication of upside risks to price stability over the medium term. It was found that high volatility in financial markets caused many investors to shift investment away from risky financial assets into monetary assets, i.e. safer and more liquid short-term assets. At the same time, the growth of lending to the private sector, especially that to non-financial corporations, continued to decline in an environment of subdued economic activity.

...while demand for liquid assets rose in times of heightened uncertainty

#### **Phase 4 – No changes to key ECB interest rates (mid-2003 to end-2005)**

Contained price pressures caused the Governing Council to keep ECB interest rates unchanged until end-2005

Contained price pressures induced the ECB to keep interest rates unchanged between mid-2003 and end-2005. Indeed, despite large increases in commodity and energy prices, as well as rises in indirect taxes and administered prices, underlying domestic inflationary pressures remained contained over the period. The recovery of economic activity in the euro area was relatively modest and gained momentum only gradually. It started in the second half of 2003, driven by exports against the backdrop of a renewed dynamism of the world economy. It then continued in 2004 and 2005, also benefiting from very favourable financing conditions. Evidence from the monetary side confirmed the view that the levels of uncertainty and risk aversion were gradually normalising, as reflected in the unwinding of past portfolio shifts into monetary assets. As a consequence, monetary dynamics moderated in 2003 and early 2004, before gaining momentum as from mid-2004.

#### **Phase 5 – Withdrawal of monetary accommodation (end-2005 to mid-2008)**

Gradual reduction of the degree of monetary policy accommodation between end-2005 and mid-2008...

Between December 2005 and July 2008, the Governing Council raised interest rates by a total of 225 basis points, establishing the main refinancing rate at 4.25% in July 2008. This adjustment of the accommodative stance was warranted to address upside risks to price stability in a setting of sound economic growth and a rapid expansion of the supply of money and credit in the euro area.

...triggered by signals from monetary analysis...

At the start of the adjustment cycle, it was monetary analysis that provided early signals of upside risks to price stability at medium to longer-term horizons. Robust credit growth as

from mid-2004 reflected the stimulative effect both of the very low prevailing level of interest rates in the euro area and, at a later stage, of the renewed dynamism of the euro area economy. The strong monetary expansion contributed further to the already ample liquidity in the euro area.

Indications from economic analysis, by contrast, were rather mixed at the beginning of the adjustment of key interest rates. However, in the first half of 2006, economic growth in the euro area gained momentum and gradually became more broadly based and increasingly self-sustaining, with domestic demand acting as the main driver.

As a result of substantial increases in international oil and food prices in the second half of 2007, annual inflation rose sharply, and it continued to do so in the first half of 2008. It reached levels significantly above 2% around the turn of 2008. Despite these price shocks, wage developments remained rather moderate and medium to longer-term inflation expectations stayed anchored at levels consistent with price stability. In the first half of 2008, however, the risks to price stability over the medium term remained clearly on the upside. In particular, the possible emergence of second-round effects in wage and price-setting as a consequence of higher commodity prices and elevated headline inflation rates posed substantial upside risks to price stability.

The expansion of money and credit remained very dynamic throughout this period. This was supported by a persistently strong growth of loans to the private sector, which added further to the liquidity already accumulated.

...before the recovery gained momentum

Upside risks to price stability continued to prevail until mid-2008...

...confirmed by a cross-check with monetary analysis

ECB also took measures to address emerging tensions in financial markets in 2007 and the first half of 2008

When the first signs of financial market tensions emerged in August 2007, the ECB acted swiftly and decisively to avoid a disruption of the interbank market. It de facto provided unlimited overnight liquidity through fine-tuning operations. In addition, the provision of liquidity to financial institutions was frontloaded. In the months that followed, temporary reciprocal currency arrangements (swap lines) were moreover established with other central banks, primarily to address the mounting pressure in short-term US dollar funding markets. This caused the tensions in the short-term segment of the euro area money market to abate considerably (see Box 5.1 for an overview of the non-standard measures taken by the Eurosystem).

#### Phase 6 – The ECB’s response to the financial crisis (since autumn 2008)

Financial turmoil turned into a crisis in autumn 2008

Following the collapse of Lehman Brothers, a US financial institution, on 15 September 2008, the financial turmoil turned into a global financial and economic crisis. Growing uncertainty about the financial health of major banks worldwide led to a collapse in activity in a large number of financial market segments. The crisis also began to spread to the real sector, with a rapid and synchronised deterioration in economic conditions in most major economies and a free fall in global trade.

ECB responded with both standard and non-standard measures...

The ECB, like other major central banks, reduced its key interest rates to historically low levels and embarked on a series of non-standard policy measures, with a view to preserving price stability, stabilising the financial situation and limiting contagion vis-à-vis the real economy.

...key ECB interest rates were cut to a historical low...

As regards the standard conduct of monetary policy, the ECB first reduced

the key interest rates by 50 basis points on 8 October 2008, in a concerted and historic move together with other major central banks, namely the Bank of Canada, the Bank of England, the Federal Reserve System, Sveriges Riksbank and the Swiss National Bank. Subsequently, taking into account the weakened economic outlook and significantly diminished upside risks to price stability over the medium term, the Governing Council reduced the key interest rates further. The main refinancing rate was cut by a total of 325 basis points to 1% within a period of only seven months, i.e. between October 2008 and May 2009 (see Chart 5.1).

At the same time, and fully in line with its primary objective of maintaining price stability, the Governing Council adopted a number of temporary non-standard measures to support financing conditions and credit flows to the euro area economy over and beyond what could be achieved through reductions in key interest rates alone. Without addressing the persistent funding problems of financial institutions, the ECB would have run the risk of the changes in key interest rates being significantly less effective than in normal times. These measures were subsequently referred to as the Enhanced Credit Support. The approach comprised the five key elements described in Box 5.1.

...and non-standard measures were introduced to ensure the proper transmission of these rate cuts and to enhance credit support

In the course of 2009, there were increasing signs of improvement in financial market conditions, with uncertainty still prevailing. Thus, in line with its exit strategy (see Section 3.8), in December 2009 the Governing Council initiated a gradual phasing-out of those non-standard measures that were no

Some of the non-standard measures started to be phased out in late 2009

longer needed, while keeping other elements of the Enhanced Credit Support in place. In particular, it announced the ending of the one-year refinancing operations, after three such operations had been launched during 2009. A number of other measures were also phased out, but this proved short-lived in view of the subsequent emergence of tensions in some sovereign debt markets.

**Tensions in sovereign bond markets in spring 2010...**

In early 2010 tensions re-emerged in some financial market segments, in particular in the government bond markets of some euro area countries (see Chart 4.10). This was mainly the result of increasing market concerns about the sustainability of public finances in view of rising government deficits and debt, causing some secondary markets to dry up.

**...called for a new non-standard measure**

For purposes of ensuring depth and liquidity in those market segments that were dysfunctional and restoring the proper functioning of the monetary policy transmission mechanism, the Governing Council announced a number of measures on 10 May 2010. In particular, it introduced the Securities Markets Programme with the aim of intervening in the euro area public and private debt securities markets

(see Box 5.1). In addition, the Governing Council re-introduced some of the non-standard measures that had been withdrawn earlier, in order to avoid spillovers from domestic sovereign bond markets to other financial markets. Overall, the measures implemented by the Eurosystem in response to the financial crisis helped to sustain financial intermediation in the euro area by safeguarding the refinancing of solvent banks and restoring confidence among financial market participants. In turn, preserving the viability of the banking system and important segments of the financial market was instrumental in keeping credit available to households and companies at accessible rates and, ultimately, in maintaining price stability.

Non-standard monetary policy measures are extraordinary steps taken in response to exceptional circumstances. They are temporary in nature and are separate from, and complement, the standard interest rate instrument, and they can be adjusted regardless of the prevailing level of interest rates. At the beginning of 2011, the emergence of short-term upward pressure on overall inflation, mainly owing to energy prices, warranted very close monitoring of all developments.

**The monetary policy stance and the provision of liquidity will continue to be adjusted as appropriate**

## Box 5.1 The Eurosystem's non-standard measures since August 2007

The global financial crisis that began with financial tensions in August 2007, and the subsequent economic downturn have called for unprecedented policy responses, including in the area of monetary policy. This box describes the non-standard monetary policy measures taken by the Eurosystem in response to the financial crisis. These measures are aimed at supporting the effective transmission of interest rate decisions to the wider economy.

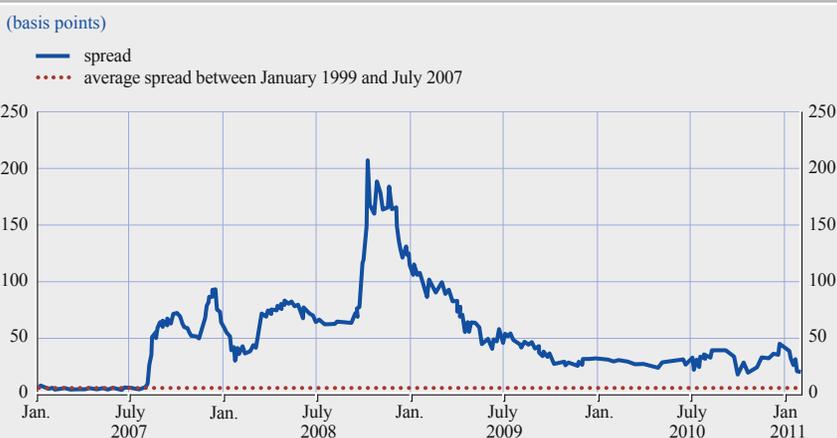
The intensity of the financial crisis can be measured using several indicators. One illustrative indicator is the spread between the three-month EURIBOR and the overnight indexed swap rate (see Chart 5.8). While rarely exceeding a few basis points before August 2007, the spread reached very high levels in various phases of the financial crisis.

All the non-standard monetary policy measures taken during the period of acute financial market tensions have been fully consistent with the ECB's mandate of maintaining price stability and are, by construction, temporary in nature. The non-standard measures taken by the Eurosystem have been targeted mainly at the banking sector, owing to its important role in the transmission of monetary policy and the financing of the economy in the euro area (in comparison with, for instance, the situation in the United States). Many of the non-standard measures have exploited the flexibility of the existing operational framework of the Eurosystem. The non-standard measures taken as the financial turmoil turned into a crisis comprise the Enhanced Credit Support and the Securities Markets Programme.

### I. ENHANCED CREDIT SUPPORT

The collapse of the US financial institution Lehman Brothers on 15 September 2008 had caused a "seizing up" of the money markets. If left unresolved, this would have

**Chart 5.8 Spread between the three-month EURIBOR and the overnight indexed swap rate**



Sources: Bloomberg, Thomson Reuters, and ECB calculations.

Note: The swap rate is the fixed rate that banks are willing to pay in exchange for receiving the average overnight rate for the duration of the swap agreement. It reflects the same negligible credit and liquidity risk premia as the overnight rate. The overnight index swap rate is therefore relatively immune to changes in liquidity or credit risk while the EURIBOR is not.

made the refinancing of many bank assets impossible, risking a massive and disorderly deleveraging by credit institutions, with severe consequences for the real economy and price stability. The ECB's Enhanced Credit Support is a set of non-standard measures to support financing conditions and the flow of credit beyond what could be achieved through reductions in key ECB interest rates alone. These measures were adopted in October 2008 and complemented in May 2009. Reflecting the financial structure of the euro area, these measures are primarily bank-based and help to ensure a more normal functioning of money markets.

#### **Extension of the maturity of liquidity provision**

The Eurosystem had already increased the amount of liquidity provided in longer-term refinancing operations (LTROs) after the ECB's decision to introduce supplementary refinancing operations with maturities of three and six months during the period of financial turmoil. After the collapse of Lehman Brothers, the maximum maturity of the LTROs was temporarily extended to twelve months. This increased the Eurosystem's intermediation role aimed at easing refinancing concerns of the euro area banking system, especially for term maturities. Reduced uncertainty and a longer liquidity planning horizon was expected to encourage banks to continue providing credit to the economy. Moreover, the measures were expected to contribute to keeping money market interest rates at low levels.

#### **Fixed rate full allotment**

A fixed rate full allotment tender procedure was also adopted for all refinancing operations during the financial crisis. Thus, contrary to normal practice, eligible euro area financial institutions had unlimited access to central bank liquidity at the main refinancing rate, subject to adequate collateral.

#### **Currency swap agreements**

The Eurosystem also temporarily provided liquidity in foreign currencies during the financial crisis, most notably in US dollars, at various maturities. It used reciprocal currency arrangements with the Federal Reserve System to provide funding in US dollars against Eurosystem eligible collateral at various maturities at fixed interest rates with full allotment. This measure supported banks which otherwise faced a massive shortfall in US dollar funding during the period of financial crisis.

#### **Collateral requirements**

The list of eligible collateral accepted in Eurosystem refinancing operations was extended during the financial crisis, and this allowed banks to use a larger range and proportion of their assets to obtain central bank liquidity. The ability to refinance illiquid assets through the central bank provides an effective remedy to liquidity shortages caused by a sudden halt in interbank lending. This includes, for instance, asset-backed securities, which became illiquid when the market collapsed after the default of Lehman Brothers.

#### **Covered bond purchase programme**

Within the scope of this programme, the Eurosystem purchased euro-denominated covered bonds issued in the euro area at a value of €60 billion over the period between May 2009 and June 2010. The covered bonds market had virtually dried up in terms of liquidity, issuance and spreads. The aim of the covered bond purchase programme was to revive the covered bond market, which is a very important financial market in Europe and a primary source of financing for banks.

As a result of the non-standard measures taken during the financial crisis, the relationship between the main refinancing rate and money market rates temporarily changed. Whereas in normal circumstances the EONIA rate closely follows movements in the main refinancing rate, the high demand from banks for central bank liquidity in refinancing operations with full allotment has resulted in the deposit rate playing a greater role in steering the EONIA, as can be seen in Chart 4.2.

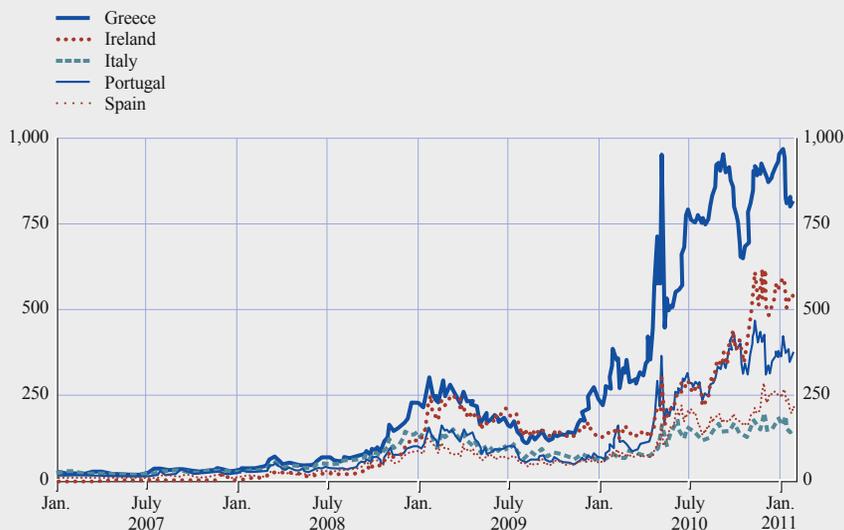
## 2. SECURITIES MARKETS PROGRAMME

The Securities Markets Programme was introduced in response to tensions in some segments of the financial market, in particular in the euro area sovereign bond markets, in May 2010. Chart 5.9 illustrates the large increases in the spreads between the yields on ten-year bonds of some euro area governments and the German Bund yield.

Under the programme, Eurosystem interventions can be carried out in the euro area public and private debt securities markets to ensure depth and liquidity in dysfunctional market segments and to restore the proper functioning of the monetary policy transmission mechanism. In line with the provisions of the Treaty on the Functioning of the European Union, Eurosystem purchases of government bonds are strictly limited to secondary markets. To ensure that liquidity conditions are not affected, all purchases are fully neutralised through liquidity-absorbing operations.

**Chart 5.9 Spreads of the ten-year government bonds of selected euro area countries against the German Bund**

(basis points)



Source: Thomson Reuters and ECB calculations.

### 5.3 AN ASSESSMENT OF MONETARY POLICY SINCE THE INTRODUCTION OF THE EURO IN 1999

In a challenging environment of economic and financial shocks...

Since the introduction of the euro in 1999, the single monetary policy has had to weather a number of different shocks. A series of substantial adverse upside price shocks has hit the economy during this time, notably the significant increase in oil prices, substantial rises in international food prices and, on the domestic side, almost regular increases in indirect taxes and marked increases in administered prices in most euro area countries. At the same time, the bursting of the “new economy” bubble in 2000-2001, the terrorist attacks on the United States in September 2001 and acute financial market tensions from 2007 onwards have highlighted the vulnerability of the world economy and the international financial system.

...the ECB acted with a medium-term perspective, underpinned by its monetary analysis,...

Monetary policy had to react to these shocks with the appropriate medium-term orientation to ensure a solid anchoring of inflation expectations in line with the ECB’s definition of price stability. This medium-term orientation also implied that monetary policy had to look beyond short-term movements in prices and, at times, mitigate dysfunctionalities in the monetary policy transmission mechanism. The monetary analysis, in particular, ensured such a medium-term orientation in the conduct of monetary policy.

...and maintained credibility in fulfilling its price stability mandate

Despite a series of adverse shocks to the inflation rate and, as of autumn 2008, a crisis period of a magnitude that has not been seen since at least the Great Depression in the 1930s, average annual HICP inflation in the euro area between January 1999 and early 2011

has been fully in line with the aim of the Governing Council to keep inflation rates below, but close to, 2% over the medium term. Since the beginning of 1999, all indicators of long-term inflation expectations in the euro area have moreover remained firmly anchored in line with price stability. It is also notable that inflation expectations remained at those levels in periods of both rising and falling inflationary pressures. This indicates that the general public and the markets have had faith in the ECB’s determination to maintain price stability over the medium term. This not only holds true for the long-term inflation expectations revealed by surveys of private economists, but can also be seen in the long-term inflation expectations embedded in bond prices (see Chart 5.7). These are positive indications that the ECB has been able, from the outset, to gain credibility and to convince the public and the markets that it was committed to maintaining price stability over the medium term.



# ANNEX

## HISTORY – THE THREE STAGES OF ECONOMIC AND MONETARY UNION

In June 1988 the European Council confirmed the objective of a progressive realisation of economic union and mandated a Committee chaired by Jacques Delors (President of the European Commission at the time) to study and propose concrete stages leading to this union. The Committee was composed of the governors of the central banks of the Member States of the European Community, Alexandre Lamfalussy (General Manager of the Bank for International Settlements at the time), Niels Thygesen (Professor of Economics in Copenhagen) and Miguel Boyer (President of the Banco Exterior de España). The resulting “Delors Report” proposed that economic and monetary union should be achieved in three discrete but evolutionary steps.

### **Stage One of Economic and Monetary Union**

On the basis of the Delors Report, the European Council decided in June 1989 that the first stage of the realisation of Economic and Monetary Union (EMU) should begin on 1 July 1990 – the date on which, in principle, all restrictions on the movement of capital between Member States were abolished. At that time, the Committee of Governors of the Central Banks of the Member States of the European Economic Community, which had played an increasingly important role in monetary cooperation since its creation in May 1964, was given additional responsibilities. These were laid down in a Council Decision dated 12 March 1990 and included holding consultations on, and promoting the coordination of, the monetary policies of the Member States, with the aim of achieving price stability. In view of the relatively short time available and the complexity of the tasks involved, the preparatory work for Stage Three of EMU was also initiated by the Committee of Governors. The first step was to identify all the issues that should be examined at an early stage, to establish a work programme by the end of 1993 and, on the basis thereof, to define the mandates of the existing sub-committees and the working groups established for that purpose.

For the realisation of Stages Two and Three, it was necessary to revise the Treaty establishing the European Economic Community (the “Treaty of Rome”) in order to establish the required institutional structure. To this end, an Intergovernmental Conference on EMU was convened, which was held in 1991, in parallel with the Intergovernmental Conference on political union. The negotiations resulted in the Treaty on European Union which was agreed upon in December 1991 and signed in Maastricht on 7 February 1992. On account of delays in the ratification process, however, the Treaty (which amended the Treaty establishing the European Economic Community – changing its name to the Treaty establishing the European Community – and introduced, inter alia, the Protocol on the Statute of the European System of Central Banks and of the European Central Bank and the Protocol on the Statute of the European Monetary Institute) did not come into force until 1 November 1993.

## **Stage Two of Economic and Monetary Union – establishment of the EMI and the ECB**

The establishment of the European Monetary Institute (EMI) on 1 January 1994 marked the start of the second stage of EMU and, consequently, the Committee of Governors ceased to exist. The EMI's transitory existence also mirrored the state of monetary integration within the Community. The EMI had no responsibility for the conduct of monetary policy in the European Union – this remained the preserve of the national authorities – nor had it any competence for carrying out foreign exchange intervention.

The two main tasks of the EMI were:

- i. to strengthen central bank cooperation and monetary policy coordination; and
- ii. to make the preparations required for the establishment of the European System of Central Banks (ESCB), for the conduct of the single monetary policy and for the creation of a single currency in the third stage.

To this end, the EMI provided a forum for consultation and for the exchange of views and information on policy issues, and it specified the regulatory, organisational and logistical framework necessary for the ESCB to perform its tasks in Stage Three.

In December 1995 the European Council agreed to name the European currency unit to be introduced at the start of Stage Three the “euro”, and confirmed that Stage Three of EMU would start on 1 January 1999. A chronological sequence of events was pre-announced for the changeover to the euro. This scenario was based mainly on detailed proposals put forward by the EMI. At the same time, the EMI was given the task of carrying out preparatory work on the future monetary and exchange rate relationships between the euro area and other EU countries. In December 1996 the EMI presented its report to the European Council. This report became the basis of a Resolution of the European Council on the principles and fundamental elements of the new exchange rate mechanism (ERM II), which was adopted in June 1997.

In December 1996 the EMI also presented to the European Council – and, subsequently, to the public – the design series selected for the euro banknotes to be put into circulation on 1 January 2002.

In order to complement and flesh out the Treaty provisions on EMU, the European Council adopted the Stability and Growth Pact in June 1997 – two Regulations form part of the Stability and Growth Pact, which aims to ensure budgetary discipline in respect of EMU. The Pact was supplemented, and the respective commitments enhanced, by a Declaration of the Council in May 1998.

On 2 May 1998 the Council of the European Union – in the composition of the Heads of State or Government – unanimously decided that 11 Member States (Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland) had fulfilled the conditions necessary for the adoption of the single currency on 1 January 1999. These countries were therefore to participate

in the third stage of EMU. The Heads of State or Government also reached a political understanding on the persons to be recommended for appointment as members of the Executive Board of the ECB.

At the same time, the ministers of finance of the Member States adopting the single currency agreed, together with the governors of the national central banks of these Member States, the European Commission and the EMI, that the current bilateral central rates of the currencies of the participating Member States in the ERM would be used in determining the irrevocable conversion rates for the euro.

On 25 May 1998 the governments of the 11 participating Member States appointed the President, the Vice-President and the four other members of the Executive Board of the ECB. Their appointment took effect from 1 June 1998 and marked the establishment of the ECB. The ECB and the national central banks of the participating Member States constitute the Eurosystem, which formulates and defines the single monetary policy in Stage Three of EMU.

With the establishment of the ECB on 1 June 1998, the EMI had completed its tasks. In accordance with Article 123 (ex Article 109I) of the Treaty establishing the European Community, the EMI went into liquidation on the establishment of the ECB. All the preparatory work entrusted to the EMI was concluded in good time, and the rest of 1998 was devoted by the ECB to the final testing of systems and procedures.

### **Stage Three of Economic and Monetary Union – irrevocable fixing of exchange rates**

On 1 January 1999 the third and final stage of EMU commenced with the irrevocable fixing of the exchange rates of the currencies of the 11 Member States initially participating in Monetary Union and with the conduct of a single monetary policy under the responsibility of the ECB.

The number of participating Member States increased to 12 on 1 January 2001, when Greece entered the third stage of EMU. Slovenia became the 13th member of the euro area on 1 January 2007, followed one year later by Cyprus and Malta, by Slovakia on 1 January 2009 and by Estonia on 1 January 2011. On the day each country joined the euro area, its central bank automatically became part of the Eurosystem.



## GLOSSARY

**Accountability:** the obligation of an independent institution to properly explain and justify its decisions to the citizens and their elected representatives, thereby making it responsible for fulfilling its objectives.

**Asset:** a resource controlled by an enterprise as a result of past events, from which future economic benefits are expected to flow to the enterprise.

**Bank lending survey (BLS):** a quarterly survey on lending policies that has been conducted by the Eurosystem since January 2003. It addresses qualitative questions on developments in credit standards, terms and conditions of loans and loan demand for both enterprises and households to a predefined sample group of banks in the euro area.

**Bond market:** the market in which longer-term **debt securities** are issued and traded.

**Break-even inflation rate (BEIR):** the spread between the yield on a nominal bond and that on an inflation-linked bond of the same (or as similar as possible) maturity.

**Broad Economic Policy Guidelines (BEPGs):** guidelines adopted by the **Council of the European Union** in line with Article 121(2) of the **TFEU** to provide the framework for defining the economic policies of the **Member States** and of the EU.

**Central bank independence:** the legal provision which guarantees that a central bank can carry out its tasks and duties without political interference. Article 130 of the **TFEU** establishes the principle of central bank independence for the euro area.

**Collateral:** an asset or third-party commitment that is used by a collateral provider to secure an obligation vis-à-vis a collateral taker.

**Consolidated balance sheet of the MFI sector:** a balance sheet obtained by netting out inter-MFI positions (e.g. inter-MFI loans and deposits) on the aggregated **MFI** balance sheet. It provides statistical information on the MFI sector's assets and liabilities vis-à-vis residents of the **euro area** not belonging to this sector (i.e. the **general government** and other euro area residents) and vis-à-vis non-euro area residents. It is the main statistical source for the calculation of **monetary aggregates** and provides the basis for the regular analysis of the counterparts of **M3**.

**Convergence criteria:** the four criteria set out in Article 140(1) of the **TFEU** that must be fulfilled by each Member State before it can adopt the euro, namely a stable price level, sound public finances (a deficit and a level of debt that are both limited in terms of GDP), a stable exchange rate and low and stable long-term

interest rates. In addition, each Member State must ensure the compatibility of its national legislation, including the statutes of the national central bank, with both the **Treaty on the Functioning of the European Union** and the Statute of the European System of Central Banks and of the European Central Bank.

**Council:** see **Council of the European Union**.

**Council of the European Union (Council):** the institution of the EU made up of representatives of the governments of the EU **Member States**, normally the ministers responsible for the matters under consideration, and the related European Commissioner. The Council meeting in the composition of the ministers of economics and finance is often referred to as the “**ECOFIN Council**”.

**Counterparty:** the opposite party in a financial transaction (e.g. any party transacting with a central bank).

**Credit institution:** (i) an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credit for its own account; or (ii) an undertaking or any other legal person, other than those under i), which issues means of payment in the form of electronic money.

**Credit to euro area residents:** a broad measure of the financing of non-**monetary financial institution** (MFI) euro area residents (including **general government** and the private sector) provided by the MFI sector. It is defined as including MFI **loans to euro area residents** and MFI holdings of securities issued by **euro area** residents. The latter include shares, other equity and **debt securities**. As securities can be seen as an alternative source of funds to loans, and as some loans can be securitised, this definition provides more accurate information on the total amount of financing provided by the MFI sector to the economy than a narrow definition comprising loans only.

**Currency in circulation:** banknotes and coins in circulation that are commonly used to make payments. Currency in circulation as included in **M3** is a net concept, meaning that it refers only to banknotes and coins in circulation that are held outside the **MFI** sector (i.e. currency held by MFIs or “vault cash” has been subtracted). Excluded are central banks’ stocks of own banknotes (as they have not been put into circulation) and collector coins (as they are not intended for use in making payments).

**Debt market:** the market in which debt instruments are issued and traded. Securitised debt has to be repaid by the issuer at maturity.

**Debt ratio:** one of the fiscal criteria used to determine the existence of an excessive deficit, as laid down in Article 126(2) of the **TFEU**. It is defined as the ratio of government debt to gross domestic product at current market prices, while government debt is defined in Protocol No 12 (on the **excessive deficit procedure**) as the total gross debt at nominal value outstanding at the end of the year and consolidated between and within the sectors of **general government**.

**Debt security:** a promise on the part of the issuer (i.e. the borrower) to make one or more payment(s) to the holder (the lender) at a specified future date or dates. Such securities usually carry a specific rate of interest (the coupon) and/or are sold at a discount to the amount that will be repaid at maturity. Debt securities issued with an original maturity of more than one year are classified as long-term. Money market paper and, in principle, private placements are included in the debt securities statistics of the **European Central Bank** (ECB).

**Deficit ratio:** one of the fiscal criteria used to determine the existence of an excessive deficit, as laid down in Article 126(2) of the **TFEU**. It is defined as the ratio of the planned or actual government deficit to gross domestic product at current market prices. The government deficit is defined in Protocol No 12 (on the **excessive deficit procedure**) as net borrowing of the **general government**.

**Deflation:** a generalised, persistent and self-reinforcing decline in a broad set of prices that results from a drop in aggregate demand and becomes entrenched in expectations.

**Degree of openness:** a measure of the extent to which an economy depends on trade with other countries or regions, e.g. the ratio of the sum of total imports and exports to GDP.

**Deposit facility:** a **standing facility** of the **Eurosystem** which **counterparties** may use to make **overnight deposits** at a **national central bank**. Such deposits are remunerated at a pre-specified interest rate (see **key ECB interest rates**).

**Deposits redeemable at notice:** savings deposits for which the holder must respect a fixed period of notice before withdrawing the funds. In some cases there is the possibility of withdrawing on demand a certain fixed amount in a specified period or of early withdrawal subject to the payment of a penalty. Deposits redeemable at a period of notice of up to three months are included in **M2** (and hence in **M3**), while those with a longer period of notice are included in the (non-monetary) longer-term financial liabilities of the **MFI** sector.

**Deposits with an agreed maturity:** mainly time deposits with a given maturity that, depending on national practices, may be subject to the payment of a penalty in the event of early withdrawal. Some non-marketable debt instruments, such as non-transferable (retail) certificates of deposit, are also included. Deposits with an agreed maturity of up to two years are included in **M2** (and hence in **M3**), while those with an agreed maturity of over two years are included in the (non-monetary) longer-term financial liabilities of the **MFI** sector.

**Derivative:** a financial contract whose value depends on the value of one or more underlying reference assets, rates or indices, on a measure of economic value or on factual events.

**ECOFIN Council:** see **Council of the European Union**.

**Economic and Financial Committee (EFC):** a committee which contributes to the preparation of the work of the **ECOFIN Council** and the European Commission. Article 134(2) of the **TFEU** contains a list of the tasks of the EFC which include reviewing the economic and financial situation of both the **Member States** and the EU, and contributing to budgetary surveillance.

**Economic and Monetary Union (EMU):** the process that led to the single currency, the euro, and the single monetary policy in the euro area, as well as the coordination of the economic policies of the EU **Member States**. This process, as laid down in the Treaty establishing the European Community, took place in three stages. Stage Three, the final stage, started on 1 January 1999 with the transfer of monetary competence to the **European Central Bank** and the introduction of the euro. The cash changeover on 1 January 2002 completed the process of setting up EMU.

**ECU (European Currency Unit):** prior to Stage Three of **EMU**, the ECU was a basket currency made up of the sum of fixed amounts of 12 out of the 15 currencies of the **Member States**. The value of the ECU was calculated as a weighted average of the value of its component currencies. The ECU was replaced by the **euro** on a one-for-one basis on 1 January 1999.

**Eligible assets (eligible collateral):** assets which can be used as collateral in order to obtain credit from the **Eurosistem**.

**Employment Guidelines:** guidelines adopted by the **Council of the European Union** in line with Article 148(2) of the **TFEU** to provide the framework for defining the employment policies of the **Member States** and of the EU.

**Enhanced Credit Support:** the non-standard measures taken by the **ECB/Eurosistem** during the financial crisis with a view to supporting financing conditions and credit flows above and beyond what could be achieved through reductions in **key ECB interest rates** alone.

**EONIA (euro overnight index average):** a measure of the effective interest rate prevailing in the **euro** interbank overnight market. It is calculated as a weighted average of the interest rates on unsecured overnight lending transactions denominated in euro, as reported by a panel of contributing banks.

**Equity market:** the market in which equities are issued and traded.

**ERM II (exchange rate mechanism II):** the exchange rate arrangement which provides the framework for exchange rate policy cooperation between the **euro area** countries and the non-euro area EU Member States. ERM II is a multilateral arrangement with fixed, but adjustable, central rates and a standard fluctuation band of  $\pm 15\%$ . Decisions concerning central rates and, possibly, narrower fluctuation bands are taken by mutual agreement between the EU **Member State** concerned, the euro area countries, the **European Central Bank** (ECB) and

the other EU **Member States** participating in the mechanism. All participants in ERM II, including the ECB, have the right to initiate a confidential procedure aimed at changing the central rates (realignment).

**EURIBOR (euro interbank offered rate):** the rate at which a prime bank is willing to lend funds in **euro** to another prime bank. The EURIBOR is computed daily, based on the rates of a sample of selected banks, for different maturities of up to 12 months.

**Euro:** the name of the European single currency adopted by the **European Council** at its meeting in Madrid on 15 and 16 December 1995.

**Euro area:** the area formed by the EU **Member States** whose currency is the **euro** and in which a single monetary policy is conducted under the responsibility of the **Governing Council** of the **European Central Bank** (ECB). In 2011 the euro area comprises Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

**Eurogroup:** an informal gathering of the ministers of economics and finance of the EU **Member States** whose currency is the euro. Its status is recognised under Article 137 of the **TFEU** and in Protocol No 14 (on the Euro Group). The **European Commission** and the **ECB** are regularly invited to take part in its meetings.

**European Central Bank (ECB):** the ECB lies at the centre of the **Eurosystem** and the **European System of Central Banks** (ESCB) and has its own legal personality in accordance with the Treaty (Article 282(3)). It ensures that the tasks conferred upon the Eurosystem and the ESCB are implemented either through its own activities or through those of the **NCBs**, pursuant to the Statute of the ESCB. The ECB is governed by the **Governing Council** and the **Executive Board**, and, as a third decision-making body, by the **General Council**.

**European Commission:** the Union institution which ensures the application of the provisions of the Treaty. The Commission develops EU policies, proposes EU legislation and exercises powers in specific areas. In the area of economic policy, the Commission produces **Integrated Guidelines for Growth and Jobs**, containing the **Broad Economic Policy Guidelines** and the **Employment Guidelines**, and reports to the **Council of the European Union** (Council) on economic developments and policies. It monitors public finances within the framework of multilateral surveillance and submits reports to the Council.

**European Council:** the institution of the EU consisting of the Heads of State or Government of the EU **Member States** and, as non-voting members, the President of the **European Commission** and the **European Council's** own President. It provides the EU with the necessary impetus for its development and defines the general political directions and priorities thereof. It does not have a legislative function.

**European Monetary Institute (EMI):** a temporary institution established at the start of Stage Two of **Economic and Monetary Union** on 1 January 1994. It went into liquidation following the establishment of the **European Central Bank** on 1 June 1998.

**European Parliament:** an EU institution that currently consists of 736 directly elected representatives of the citizens of the **Member States**. It plays a role in the EU's legislative process, although with differing prerogatives that depend on the procedures through which the respective EU legislation is to be enacted. Where monetary policy and the ESCB are concerned, the powers of the European Parliament are mainly consultative in character, although the **Treaty on the Functioning of the European Union** provides for certain procedures with respect to the democratic accountability of the ECB vis-à-vis the Parliament (presentation of the ECB's Annual Report, including a general debate on monetary policy, and hearings before the competent parliamentary committees).

**European System of Accounts 1995 (ESA 95):** a comprehensive and integrated system of macroeconomic accounts based on a set of internationally agreed statistical concepts, definitions, classifications and accounting rules aimed at achieving a harmonised quantitative description of the economies of the EU **Member States**. The ESA 95 is the EU's current version of the world System of National Accounts 1993 (SNA 93).

**European System of Central Banks (ESCB):** composed of the **European Central Bank** and the **national central banks** of all EU **Member States**, i.e. it includes, in addition to the members of the **Eurosystem**, the national central banks of those Member States whose currency is not the euro.

**Eurostat:** the Statistical Office of the EU. Eurostat is part of the **European Commission** and responsible for the production of EU statistics.

**Eurosystem:** the central banking system of the euro area. It comprises the **European Central Bank** and the **national central banks** of the EU **Member States** whose currency is the euro.

**Eurosystem/ECB staff projections:** the results of exercises conducted by **Eurosystem/ECB** staff to project possible future macroeconomic developments in the **euro area** as part of the economic analysis.

**Excessive deficit procedure:** the provision set out in Article 126 of the **TFEU** and specified in Protocol (No 12) on the excessive deficit procedure requires EU **Member States** to maintain budgetary discipline, defines the criteria for a budgetary position to be considered an excessive deficit and regulates steps to be taken following the observation that the requirements for the budgetary balance or government debt have not been fulfilled. Article 126 is supplemented by **Council Regulation (EC) No 1467/97** of 7 July 1997 on speeding up and clarifying the implementation of the excessive deficit procedure (as amended by Council Regulation (EC) No 1056/2005 of 27 June 2005), which is one element of the **Stability and Growth Pact**.

**Exchange rate targeting:** a monetary policy strategy that aims for a given (usually a stable or even fixed) exchange rate against another currency or group of currencies.

**Executive Board:** one of the decision-making bodies of the **European Central Bank** (ECB). It comprises the President and the Vice-President of the ECB and four other members appointed by the **European Council**, acting by a qualified majority, on a recommendation from the **Council of the European Union**, after it has consulted the **European Parliament** and the ECB.

**Financial markets:** markets in which those who have a surplus of funds lend to those who have a shortage.

**Financial stability:** the condition in which the financial system – comprising financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities.

**Fine-tuning operation:** an **open market operation** executed by the **Eurosystem** in order to deal with unexpected liquidity fluctuations in the market. The frequency and maturity of fine-tuning operations are not standardised.

**Fixed rate tender:** a tender procedure, in which the interest rate is specified in advance by the central bank and in which participating **counterparties** bid the amount of money they want to transact at the fixed interest rate.

**Foreign exchange swap:** simultaneous spot and forward transactions exchanging one currency against another.

**Forward rate agreement (FRA):** an agreement whereby one party undertakes to pay another party a certain interest rate on a certain principal amount for a certain period of time beginning at some point in the future.

**Futures contract:** a contract to buy or sell securities or a commodity at a predetermined price on a specified future date.

**General Council of the ECB:** one of the decision-making bodies of the ECB. It comprises the President and the Vice-President of the ECB and the governors of all EU **national central banks**.

**General government:** a sector defined in the **European System of Accounts 1995 (ESA 95)** as comprising resident entities that are engaged primarily in the production of non-market goods and services intended for individual and collective consumption and/or in the redistribution of national income and wealth. Included are central, regional and local government authorities, as well as social security funds. Excluded are government-owned entities that conduct commercial operations, such as public enterprises.

**Governing Council of the ECB:** the supreme decision-making body of the **European Central Bank** (ECB). It comprises all the members of the **Executive Board** of the ECB and the governors of the **national central banks** of the **Member States** whose currency is the **euro**.

**Haircut:** a risk control measure applied to underlying **assets** whereby the value of those underlying assets is calculated as the market value of the assets reduced by a certain percentage (the “haircut”). Haircuts are applied by a collateral taker in order to protect itself from losses resulting from declines in the market value of a security in the event that it needs to liquidate that **collateral**.

**Harmonised Index of Consumer Prices (HICP):** a measure of the development of consumer prices that is compiled by **Eurostat** and is harmonised across for all EU **Member States**. The HICP is the measure of prices used by the ECB to define **price stability** in quantitative terms.

**Households:** one of the institutional sectors in the **European System of Accounts 1995** (ESA 95). The household sector covers individuals or groups of individuals as consumers, but also as entrepreneurs (i.e. sole proprietorships and partnerships). Non-profit institutions serving households are a separate institutional sector according to the ESA 95, although they are often reported together with households.

**Inflation:** an increase in the general price level, e.g. in the consumer price index.

**Inflation risk premium:** compensation of investors for the risks associated with holding **assets** (denominated in nominal terms) over the longer term.

**Inflation targeting:** a monetary policy strategy aimed at maintaining **price stability** by focusing on deviations in published inflation forecasts from an announced inflation target.

**Inflation-indexed government bonds:** debt securities issued by the general government, the coupon payments and principal of which are linked to a specific consumer price index.

**Integrated Guidelines:** guidelines adopted by the **Council of the European Union** (Council) to promote growth and jobs, bringing together the **Broad Economic Policy Guidelines** and the Employment Guidelines.

**Interbank money market:** the market for short-term lending between banks, usually involving the trading of funds with a maturity of between one day (overnight or even shorter) and one year.

**Key ECB interest rates:** the interest rates, set by the **Governing Council**, which reflect the monetary policy stance of the **European Central Bank**. They are the rates on the **main refinancing operations**, the **marginal lending facility** and the **deposit facility**.

**Labour force:** the sum total of persons in employment and the number of unemployed.

**Labour force participation rate:** the labour force as a proportion of the total working age population. The working age population is normally defined as the population aged between 15 and 64 years of age. The labour force comprises both employed and unemployed persons.

**Leading indicators:** economic variables which anticipate or contain useful information for predicting future developments in other variables.

**Liability:** a present obligation of the enterprise arising from past events, the settlement of which is expected to result in an outflow from the enterprise of resources embodying economic benefits.

**Loans to euro area residents:** funds lent by **monetary financial institutions (MFIs)** to borrowers and not evidenced by negotiable documents or represented by one single document (if it has become negotiable). This description includes loans granted to households, non-financial corporations and government. Loans to households can take the form of consumer credit (loans granted for personal use in the consumption of goods and services), lending for house purchases (credit extended for the purpose of investing in housing, including building and home improvements) and other lending (loans granted for purposes such as debt consolidation, education, etc.) (see also **credit to euro area residents**).

**Long-term interest rates:** the rates of interest or the yield on interest-bearing financial assets with a relatively long period to maturity, for which the yield on government bonds with a maturity of ten years are often used as a benchmark.

**Longer-term refinancing operation:** a credit operation with a maturity of more than one week that is executed by the **Eurosystem** in the form of **reverse transactions**. The regular monthly operations have a maturity of three months. During the financial market crisis, supplementary operations with maturities ranging from one maintenance period to one year were conducted, the frequency of which varied.

**M1:** a narrow monetary aggregate that comprises **currency in circulation** plus overnight deposits held with **MFIs** and central government (e.g. at the post office or treasury).

**M2:** an intermediate monetary aggregate that comprises **M1** plus deposits redeemable at a period of notice of up to and including three months (i.e. short-term savings deposits) and deposits with an agreed maturity of up to and including two years (i.e. short-term time deposits) held with **MFIs** and central government.

**M3:** a broad monetary aggregate that comprises **M2** plus marketable instruments, in particular repurchase agreements, money market fund shares/units, and debt securities with a maturity of up to and including two years issued by **MFIs**.

**Main refinancing operation:** a regular **open market operation** executed by the **Eurosystem** in the form of **reverse transactions**. Such operations are conducted through a weekly **standard tender** and normally have a maturity of one week.

**Maintenance period:** the period over which **credit institutions'** compliance with **reserve requirements** is calculated. The maintenance period begins on the settlement day of the first **main refinancing operation** following the meeting of the **Governing Council** at which the monthly assessment of the monetary policy stance is pre-scheduled. The **European Central Bank** publishes a calendar of the reserve maintenance periods at least three months before the start of the year.

**Marginal interest rate:** the interest rate at which the total tender allotment is exhausted.

**Marginal lending facility:** a **standing facility** of the **Eurosystem** which **counterparties** may use to receive overnight credit from a **national central bank** at a pre-specified interest rate against eligible assets (see **key ECB interest rates**).

**Member State:** a country that is a member of the European Union.

**MFI:** see **monetary financial institution**.

**Minimum bid rate:** the lower limit to the interest rates at which **counterparties** may submit bids in the variable rate tenders (see **key ECB interest rates**).

**Minimum reserves:** the minimum amount of reserves a **credit institution** is required to hold with a 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 on the institution's balance sheet. In addition, institutions are allowed to deduct a lump-sum allowance from their reserve requirement.

**Monetary aggregate: currency in circulation** plus outstanding amounts of certain liabilities of **monetary financial institutions** (MFIs) that have a relatively high degree of liquidity and are held by non-MFI euro area residents outside the central government sector. The **Governing Council** has announced a reference value for the growth of **M3** (see also **reference value for monetary growth**).

**Monetary base:** currency (banknotes and coins) in circulation plus the **minimum reserves** credit institutions are required to hold with the **Eurosystem** and any excess reserves they may voluntarily hold in the Eurosystem's deposit facility, all of which are liabilities on the Eurosystem's balance sheet. The monetary base is sometimes also referred to as "base money".

**Monetary financial institutions (MFIs):** financial institutions which together form the money-issuing sector of the **euro area**. These include the **Eurosystem**, resident **credit institutions** (as defined in EU law) and all other resident financial institutions whose business is to receive deposits and/or close substitutes for

deposits from entities other than MFIs and, for their own account (at least in economic terms), to grant credit and/or invest in securities. The latter group consists predominantly of **money market funds**, i.e. funds that invest in short-term and low-risk instruments usually with a maturity of one year or less.

**Monetary policy strategy:** the general approach to the conduct of monetary policy. The monetary policy strategy of the ECB comprises a quantitative definition of the primary objective of price stability and an analytical framework based on two pillars – economic analysis and monetary analysis – which forms the basis of the Governing Council’s overall assessment of the risks to price stability and its monetary policy decisions. It also provides the framework for explaining monetary policy decisions to the public.

**Monetary policy transmission mechanism:** the process through which monetary policy decisions, e.g. the interest rate decisions taken by the Governing Council in the case of the **euro area**, affect the economy in general and the price level in particular.

**Monetary targeting:** a **monetary policy strategy** aimed at maintaining **price stability** by focusing on the deviations of money growth from a pre-announced target.

**Money demand:** a key economic relationship that represents the demand for money balances by non-MFIs. The demand for money is often expressed as a function of prices and economic activity, which serves as a proxy for the level of transactions in the economy, and certain interest rate variables, which measure the opportunity costs of holding money.

**Money market:** the market in which short-term funds are raised, invested and traded using instruments which generally have an original maturity of up to and including one year.

**Money market fund:** a collective investment undertaking that primarily invests in money market instruments and/or other transferable debt instruments with a residual maturity of up to and including one year, and/or that pursues a rate of return that approaches the interest rates on money market instruments.

**National central bank (NCB):** a central bank of a **Member State** of the European Union.

**Neutrality of money:** a basic economic principle stating that, in the long run, changes in the money supply only lead to changes in nominal variables, but not in real variables. Changes in the money supply will therefore have no long-term effect on variables such as real output, unemployment or real interest rates.

**Nominal effective exchange rate (EER) of the euro:** nominal euro EERs are weighted averages of bilateral euro exchange rates against the currencies of the euro area’s main trading partners. The ECB publishes nominal EER indices for

the euro against the currencies of a narrow and a broad group of trading partners. The weights used reflect the share of each partner country in euro area trade.

**Non-financial corporation:** a corporation or quasi-corporation that is not engaged in financial intermediation, but is active primarily in the production of market goods and non-financial services.

**Non-standard measures:** measures taken by the ECB to support the effective transmission of interest rate decisions to the wider euro area economy, in a context of a dysfunctional situation in some financial market segments and the financial system.

**Open market operation:** an operation executed on the initiative of the central bank in the financial market. With regard to their aims, regularity and procedures, **Eurosystem** open market operations can be divided into four categories: **main refinancing operations**, **longer-term refinancing operations**, **fine-tuning operations** and **structural operations**. As for the instruments used, **reverse transactions** are the main open market instrument of the **Eurosystem** and can be employed in all four categories of operations. In addition, the issuance of debt certificates and outright transactions are available for structural operations, while outright transactions, **foreign exchange swaps** and the collection of fixed-term deposits are available for the conduct of **fine-tuning operations**.

**Opportunity cost:** a measure of the costs of holding an **asset**, typically measured as the spread between its own return and the return on an alternative asset.

**Options:** financial instruments that give the owner the right, but not the obligation, to buy or sell specific assets (e.g. a bond or a stock) at a predetermined price (the strike or exercise price) at or up to a certain future date (the exercise or maturity date).

**Output gap:** the difference between the actual and potential levels of output of an economy, expressed as a percentage of potential output. Potential output is the level of output that can be achieved when the factors of production are utilised at non-inflationary levels.

**Outright transaction:** a transaction whereby **assets** are bought or sold outright in the market (spot or forward).

**Other financial intermediaries (OFIs):** corporations or quasi-corporations (other than an insurance corporation and pension fund) that are engaged mainly in financial intermediation by incurring liabilities in forms other than currency, deposits and/or close substitutes for deposits from institutional entities other than **MFIs**. OFIs include, in particular, corporations engaged primarily in long-term financing (such as financial leasing), securitised **asset** holdings, other financial holdings, securities and derivatives dealing (on their own account), venture capital and development capital.

**Overnight deposits:** deposits with next-day maturity. This instrument category comprises mainly those sight/demand deposits that are fully transferable

(by cheque or similar instrument). It also includes non-transferable deposits that are convertible on demand or by close of business the following day. Overnight deposits are included in **M1** (and hence in **M2** and **M3**).

**Pension fund:** a provision or similar fund set aside by non-financial corporations to pay for their employees' pensions.

**Price stability:** the maintenance of price stability is the primary objective of the **Eurosystem**. The Governing Council defines price stability as a year-on-year increase in the **Harmonised Index of Consumer Prices** (HICP) for the **euro area** of below 2%. The Governing Council has also made it clear that, in the pursuit of price stability, it aims to maintain inflation rates below, but close to, 2% over the medium term.

**Projections:** see **Eurosystem/ECB staff projections**.

**Real effective exchange rate (EER) of the euro:** real euro EERs are nominal euro EERs deflated by a weighted average of foreign, relative to domestic, prices or costs. They are, thus, measures of price and cost competitiveness.

**Reference value for monetary growth:** the annual growth rate of **M3** growth that is deemed to be compatible with price stability over the medium term.

**Reference value for the fiscal position:** Protocol No 12 on the **excessive deficit procedure**, as annexed to the **Treaty on the Functioning of the European Union**, sets explicit reference values for the **general government deficit ratio** (3% of GDP) and the **debt ratio** (60% of GDP) (see also **Stability and Growth Pact**).

**Repurchase agreement:** the process of borrowing money by combining the sale of an **asset** (usually a fixed income security) with the subsequent repurchase of that same asset for a slightly higher price (which reflects the borrowing rate).

**Repurchase operation (repo):** a liquidity-providing **reverse transaction** based on a **repurchase agreement**.

**Reserve base:** the sum of the eligible balance sheet items (in particular liabilities) that constitute the basis for calculating the **reserve requirement** of a **credit institution**.

**Reserve ratio:** the ratio defined by the central bank for each category of eligible balance sheet items included in the **reserve base**. The ratio is used to calculate **reserve requirements**.

**Reserve requirement:** the minimum amount of reserves a **credit institution** is required to hold with the **Eurosystem** over a predefined maintenance period. Compliance with the requirement is determined on the basis of the average of the daily balances in the reserve accounts over the maintenance period.

**Reverse transaction:** an operation whereby the central bank buys or sells assets under a **repurchase agreement** or conducts credit operations against **collateral**.

**Securities Markets Programme (SMP):** an ECB programme for conducting interventions in the euro area public and private debt securities markets to ensure depth and liquidity in dysfunctional market segments with a view to restoring an appropriate **monetary policy transmission mechanism**.

**Stability and Growth Pact:** intended to serve as a means of safeguarding sound government finances in the EU **Member States** in order to strengthen the conditions for **price stability** and for strong, sustainable growth conducive to employment creation. To this end, the Pact describes that Member States specify medium-term budgetary objectives. It also contains concrete specifications on the **excessive deficit procedure**. The Pact consists of Resolution of the Amsterdam European Council on 17 June 1997 on the Stability and Growth Pact and two Council Regulations, namely: i) Regulation (EC) No 1466/97 of 7 July 1997 on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies as amended by Regulation (EC) No 1055/2005 of 27 June 2005; and ii) Regulation (EC) No 1467/97 of 7 July 1997 on speeding up and clarifying the implementation of the excessive deficit procedure as amended by Regulation (EC) No 1056/2005 of 27 June 2005. The Stability and Growth Pact is complemented by the **ECOFIN Council**'s report entitled "Improving the Implementation of the Stability and Growth Pact", which was endorsed by the Brussels European Council of 22 and 23 March 2005. It is also complemented by a Code of Conduct entitled "Specifications on the implementation of the Stability and Growth Pact and Guidelines on the format and content of stability and convergence programmes", which was endorsed by the ECOFIN Council on 11 October 2005.

**Stability programmes:** these are medium-term government plans and assumptions provided by euro area countries regarding the development of key economic variables with a view to the achievement of the medium-term objective of a budgetary position close to balance or in surplus, as referred to in the **Stability and Growth Pact**. These programmes present measures for the consolidation of fiscal balances as well as the underlying economic scenarios. Stability programmes must be updated annually. They are examined by the **European Commission** and the **Economic and Financial Committee** (EFC). Their reports serve as the basis for an assessment by the **ECOFIN Council**, focusing in particular on whether the medium-term budgetary objective in the programme is in line with a budgetary position close to balance or in surplus, providing for an adequate safety margin to ensure that an excessive deficit is avoided. **Member States** whose currency is not the **euro** must submit annual convergence programmes, in accordance with the **Stability and Growth Pact**.

**Standard tender:** a tender procedure used by the **Eurosystem** in its regular **open market operations**. Standard tenders are carried out within 24 hours. All **counterparties** fulfilling the general eligibility criteria are entitled to submit bids.

**Standing facility:** a central bank facility available to **counterparties** at their own initiative. The **Eurosystem** offers two overnight standing facilities: the **marginal lending facility** and the **deposit facility**.

**Stock market:** see **equity market**.

**Structural operation:** an **open market operation** executed by the **Eurosystem** mainly in order to adjust the structural liquidity position of the financial sector vis-à-vis the Eurosystem.

**Survey of Professional Forecasters (SPF):** a quarterly survey that has been conducted by the ECB since 1999 to collect macroeconomic forecasts on **euro area** inflation, real GDP growth and unemployment from a panel of experts affiliated to financial and non-financial organisations based in the EU.

**Swap:** an agreement to exchange future cash flows according to a prearranged formula (see **foreign exchange swap**).

**Systemic risk:** the risk that the inability of one participant to meet its obligations in a system will cause other participants to be unable to meet their obligations when they become due, potentially with spillover effects (e.g. significant liquidity or credit problems) threatening the stability of or confidence in the financial system. That inability to meet obligations can be caused by operational or financial problems.

**TARGET (Trans-European Automated Real-time Gross settlement Express Transfer system):** the Eurosystem's real-time gross settlement system for the **euro**. The first-generation TARGET system was replaced by **TARGET2** in May 2008.

**TARGET2:** the second-generation **TARGET** system. It settles payments in **euro** in central bank money and functions on the basis of a single IT platform, to which all payment orders are submitted for processing.

**TFEU:** see **Treaty on the Functioning of the European Union**.

**Transmission mechanism:** see **Monetary policy transmission mechanism**.

**Treaties:** unless stated otherwise, all references in this report to the "Treaties" refer to both the **Treaty on the Functioning of the European Union** and the Treaty on European Union.

**Treaty:** unless stated otherwise, all references in this report to the "Treaty" refer to the **Treaty on the Functioning of the European Union**, and the references to article numbers reflect the numbering in effect since 1 December 2009.

**Treaty of Lisbon (Lisbon Treaty):** the Treaty of Lisbon amends the Union's two core treaties: the Treaty on European Union and the Treaty establishing the European Community. The latter has been renamed the **Treaty on the**

**Functioning of the European Union** (TFEU). The Treaty of Lisbon was signed in Lisbon on 13 December 2007 and entered into force on 1 December 2009.

**Treaty on the Functioning of the European Union (TFEU):** following the entry into force of the **Treaty of Lisbon** on 1 December 2009, the Treaty establishing the European Community was renamed the Treaty on the Functioning of the European Union. This Treaty – referred to as the Treaty of Rome (signed in Rome on 25 March 1957) – entered into force on 1 January 1958 to establish the European Economic Community (EEC). The Treaty establishing the European Community was subsequently amended by the Treaty on European Union (often referred to as the Maastricht Treaty) signed on 7 February 1992 and entering into force on 1 November 1993, thereby establishing the European Union. Thereafter, both the Treaty establishing the European Community and the Treaty on European Union were amended by the Treaty of Amsterdam, signed in Amsterdam on 2 October 1997 and entering into force on 1 May 1999, the Treaty of Nice, signed on 26 February 2001 and entering into force on 1 February 2003, and then by the Treaty of Lisbon.

**Unemployed:** according to the EU definition, any person aged 15 to 74, who is: (i) without work during the reference week; (ii) currently available for work; and (iii) actively seeking work.

**Unemployment rate:** the number of unemployed persons as a percentage of the labour force.

**Unit labour costs:** a measure of total labour costs per unit of output calculated for the euro area as the ratio of total compensation per employee to labour productivity (defined as GDP (volume) per person employed).

**Variable rate tender:** a tender procedure whereby the **counterparties** bid both the amount of money they want to transact with the central bank and the interest rate at which they want to enter into the transaction.

**Yield curve:** a graphical representation of the relationship between the interest rate or yield and the residual maturity at a given point in time for sufficiently homogenous debt securities with different maturity dates. The slope of the yield curve can be measured as the difference between the interest rates or yield at two selected maturities.

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