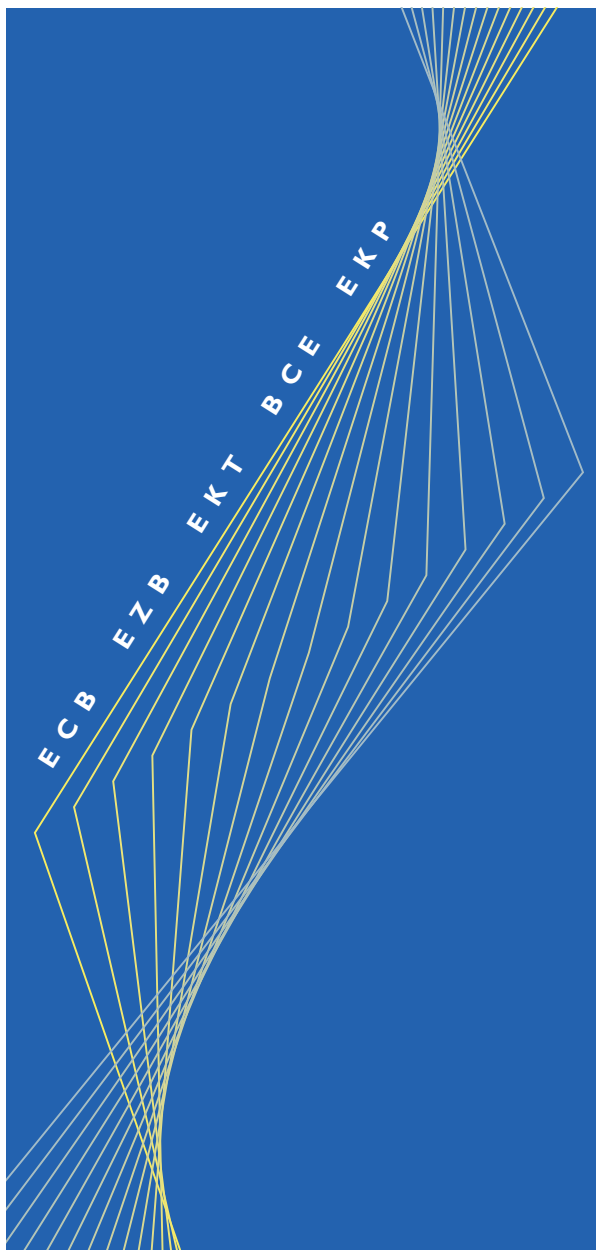




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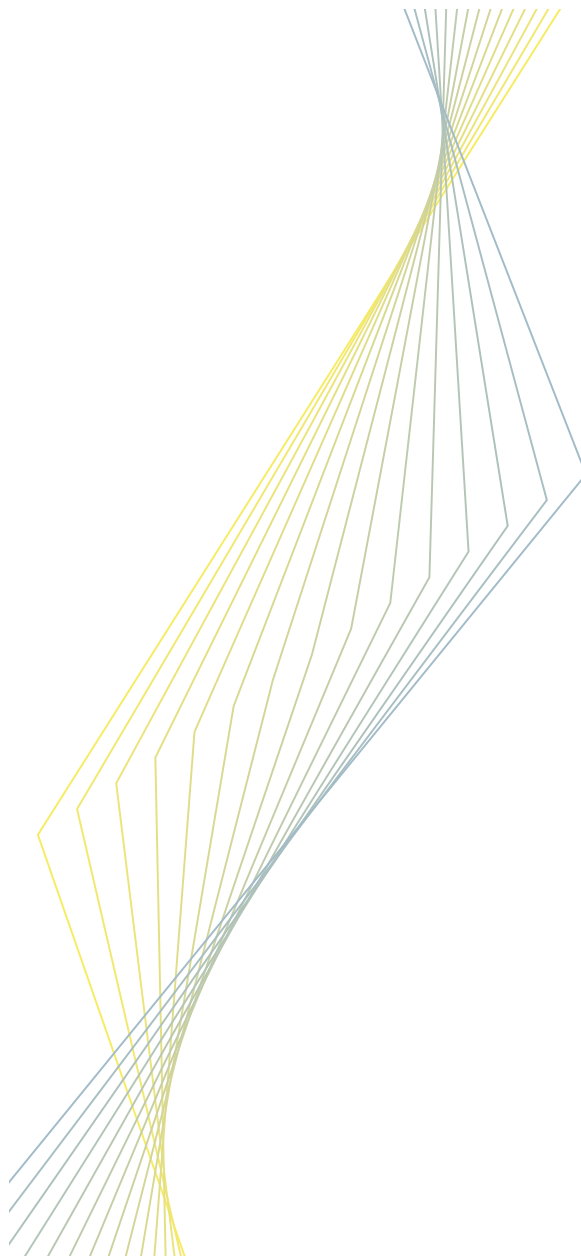


# **STRUCTURAL FACTORS IN THE EU HOUSING MARKETS**

March 2003



EUROPEAN CENTRAL BANK



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FACTORS IN THE EU  
HOUSING MARKETS**

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## **Executive Summary**

This report, prepared by the Task Force on Housing of the Monetary Policy Committee of the European System of Central Banks (ESCB), examines the origins and effects of housing market fluctuations in the European Union (EU) and provides an overview of developments in EU housing markets since 1980. The emphasis is on structural aspects of the housing market that may influence the effects of monetary policy on economic activity and prices, in particular residential property price and rent dynamics, housing taxes and subsidies, and the main inter-linkages between housing markets and mortgage markets that may give rise to financial cycles. The report presents cross-country information on housing markets, often of a non-harmonised nature, and has benefited from contributions of the EU national central banks (NCBs).

### ***The importance of housing markets for the overall economy and for monetary policy***

There are manifold reasons for the considerable attention economists and monetary policy-makers pay to developments in the housing markets.

First, housing wealth is an important part of the net worth of the private sector and housing-related expenses (e.g. mortgage payments or rents) represent a major part of household expenditure. Thus changes in residential property prices (hereinafter referred to as “house prices”), rents and mortgage interest rates may have a significant impact on aggregate demand and inflation, and play an important role in the transmission mechanism of monetary policy. Understanding the factors that drive house prices and rents is crucial for understanding the role housing markets play in the overall economy. In particular, monetary policy needs to identify the sources and nature of the shocks driving house price and rent fluctuations in order to understand their implications for the outlook for price stability and to formulate the appropriate policy response.

Second, various episodes of boom and bust in house (and other asset) prices in a number of developed economies have triggered attention to the role of house prices in prompting financial cycles and on the implications of sharp price fluctuations for financial stability. Understanding the interrelationships between mortgage and housing markets is important in this respect. They also affect the transmission mechanism of monetary policy.

Finally, the functioning of the housing market may have implications for the supply side of the economy, in particular, for labour mobility in the EU. High transaction costs in housing markets and the existence of (non-portable) housing-related benefits hinder labour mobility across and within EU countries.

### ***House price dynamics***

Real house prices in most EU countries follow long cycles around a moderate upward trend. In the period since 1980, house price cycles in many EU countries have often lasted more than ten years. In real terms (i.e. deflated by the private consumption deflator), house prices are typically found, in the “long run” (over two decades), to have risen by 0% to 3% per annum across different countries.

On some occasions, real house prices in some EU countries have changed by more than 10% in either direction in consecutive years, a situation labelled as a “boom” or a “bust”. Since 1980, booms have been more frequent than busts, especially in the euro area countries, and have typically been followed by prolonged periods of very low growth or even of decline in house prices. House price booms and busts have been observed more frequently in the three Nordic countries and in the United Kingdom, but they have not been altogether absent from other EU countries. Spain, Ireland, the Netherlands and the United Kingdom have been among the EU countries that have recently experienced

two-digit growth rates in house prices. The latest data for 2002 show clear signs of a deceleration of house price inflation in Ireland and the Netherlands, but double-digit annual growth rates in real house prices in Spain and the United Kingdom. Greece and Italy also experienced a rapid rise of house prices in 2001-2002.

In the long run, the increase in real house prices is mainly correlated with the rising cost of land for construction use. Land is a scarce resource, so that its cost is expected to rise as demand for space suitable for construction purposes rises with the increasing number of households and with higher income. In the short run, the supply of new housing or the dismantling of the existing housing stock can only respond sluggishly to demand shocks, so that house prices may overshoot or undershoot their long-term trend for considerable periods of time. Thus, house price fluctuations are part of the functioning of the housing market and do not necessarily reflect “bubbles” or “frenzies”. However, it is often difficult to reconcile large real house price increases in successive years with the development of the underlying fundamentals.

Empirical literature suggests that house price fluctuations are to a significant degree attributable to macroeconomic conditions, in particular to changes in households' disposable income and income expectations and to nominal and real interest rates. Although nominal interest rates are no longer a substantial source of asymmetry in house price fluctuations in the euro area, past fluctuations of interest rates as well as different inflation rates and, thus, real interest rates are thought to have played an important role in recent movements of house prices. These, in turn, may have contributed to differences in business cycles.

Despite the importance of macroeconomic factors, the functioning of the housing markets depends largely on national and local factors. Housing markets are “local” markets

in the sense that forces driving house price equalisation are weak even within a single country and even in the long run. Furthermore, various local structural factors, such as land availability, the local planning system and local taxes as well as institutional and contractual features of the national housing markets and housing credit systems are likely to have a role in amplifying or dampening the effects of macroeconomic shocks on house prices at the local and national levels. It is at the national and local level that appropriate policies need to be implemented in order to prevent a serious under-supply or over-supply of housing from developing, which in turn can have macroeconomic and financial implications of relevance for monetary policy.

### **Rent dynamics**

As an integral part of the housing market, the functioning of the rental sector can have implications for the rest of the market. An efficient rental sector is likely to reduce mobility costs and raise the liquidity of the housing market. Moreover, with a weight of about 6% (both in the euro area and in the EU), rents are an important component of the Harmonised Index of Consumer Prices (HICP). Since 1997, nominal rents in the euro area have risen, on average, by 1.7% per annum (1.9% in the EU) and have contributed 0.1 percentage point per annum to euro area (and EU) HICP inflation.

The share of rented dwellings in the total stock of housing in most EU countries has been falling over the past 20 years. In some cases, this decline has been rather sharp. Although hard evidence is not available, it is likely that, at least in an earlier period, the relative decline of the rental sector in many EU countries was attributable to a fall in the supply of rental accommodation due to the strictness of the rent-related regulatory regimes. Tax systems, traditionally more favourable to owner-occupied housing, are also likely to have played a role.

In recent years, there has been some deregulation of rental markets, but important segments of the rental market in many EU countries still operate under strict control regimes, giving rise to market segmentation. Most EU countries have tended to relax rent controls in new contracts, but rents of sitting tenants are seldom adjusted to reflect housing market conditions, and short-term contracts are often not widely used. A sizeable discrepancy between new rents and rents of sitting tenants potentially has negative effects on labour mobility.

Despite rents rising more slowly than house prices in most EU countries, it may have become more economical in recent years for households to buy rather than rent, because of the fall in interest rates. This is likely to have resulted in declining demand for rented accommodation, contributing further to the relative shrinking of the rental sector.

#### **Housing tax/subsidy systems**

All EU governments have complex tax/subsidy systems in place that directly affect the housing markets. This reflects the special role of "housing" for public policy. The tax/subsidy regimes have tended to favour immovable assets rather than financial assets and owner-occupiers rather than landlords. In some countries, they favoured purchases of new versus existing dwellings.

Housing taxes and subsidies have undergone substantial change in a number of EU countries over the past decade. Overall, the tax/subsidy system has become more neutral with respect to the different types of assets, but incentives for owner-occupied housing have generally been reinforced vis-à-vis rented accommodation, even though measures have become more targeted towards low-income households in some countries. Public expenditure on housing has remained roughly stable, or has decreased somewhat where housing policies have become more focused. Some countries have experimented with the micro-management of

the housing market, including the introduction of transaction taxes, with generally poor results. On some occasions, tax/subsidy reforms had to be changed only a short period of time after having been implemented, thus adding to country-specific shocks faced by the national housing market. Sometimes policy measures have even turned out to be pro-cyclical.

In view of the potential importance of the rental sector for the efficient overall functioning of the housing market, the bias of tax relief and subsidies in favour of owner-occupied housing should be re-considered, particularly in those countries where the share of the rental housing sector has fallen to very low levels. A reduction of policy-induced transaction costs for owner-occupied housing would also foster labour mobility.

#### **The mortgage market**

Mortgage (and total) indebtedness has increased in most EU countries over the past ten years. This rise in mortgage indebtedness is to a large extent attributable to factors such as rising residential investment, higher income expectations, falling interest rates and a tax treatment that is more favourable for mortgages than for other loans. The recent proliferation of more flexible mortgage contracts may have given previously credit-constrained households wider access to mortgage credit. Rising house prices may also have contributed to the accumulation of mortgage debt by raising the collateral value of the households' assets. Despite the rapid rise of mortgage debt, the ratio of debt servicing costs to income is estimated to have remained relatively constant in the second half of the 1990s, because of falling mortgage interest rates and rising incomes. The ratio has been rising in different EU countries since 2000.

Economic literature has highlighted how the interplay between the housing and the mortgage markets can strengthen the effects of an original shock or of a change in

monetary policy on house prices and final demand. This is because an initial increase in house prices, following a drop in interest rates, for instance, will increase the collateral value of the housing assets and thus improve access to mortgage-backed loans. The extra liquidity may feed back to the housing market, amplifying the effects of the original interest rate fall on house prices.

The extra liquidity may also go to finance extra final (non-housing) current consumption and/or the purchase of financial assets, thus strengthening the positive wealth effects of house prices on final demand. This is referred to as "house equity withdrawal". Tentative estimates suggest that house equity withdrawal has recently been significant in Denmark, the Netherlands, Portugal and the United Kingdom. Gross of taxes and subsidies, the household sector in these countries is estimated to have spent considerably less on housing investment than it received in terms of mortgage-backed loans from the credit system. It should be noted, however, that these estimates may contain significant measurement errors. In most other EU countries, there were no signs of significant house equity withdrawal.

Rising house prices are likely to have contributed to house equity withdrawal, but they were not the only reason for it. In Portugal, for example, house equity withdrawal is seen to have taken place during

a period when house prices were not particularly booming and despite the fact that direct equity withdrawal (through refinancing higher amounts of a mortgage and/or second mortgages) has not been common in this country. The strong rise of mortgage debt could have also reflected expectations for high income growth and lower interest rates.

As experience in some EU countries suggests, credit cycles are sometimes triggered by house price fluctuations. The resulting high indebtedness increases the vulnerability of households to income shocks and interest rate changes and may eventually affect the stability of financial institutions. In view of this, careful consideration should be given to the evolution of households' indebtedness and to the appropriate risk assessment procedures.

#### ***The need for improved statistical information***

An important task of the Fourth Structural Issues Report has been the collection of comparable data on housing markets. The collection of such data has proven hard, particularly for the euro area countries, restricting the scope of cross-country analyses. There is need for action aimed at improving the standard of statistics on housing markets across the EU countries.



## I The importance of housing markets for the overall economy and for monetary policy

### I.1 Relevance of housing market developments

In recent years, developments in the housing markets in general, and house prices in particular, have received considerable attention from economists and monetary policy-makers. There are various reasons for this. First, housing wealth is an important part of the net worth of the private sector and housing-related expenses (e.g. mortgage or rent payments) represent an important part of household expenditure. Thus variations in household wealth, income and expenditure brought about by changes in house prices, rents and mortgage interest rates might have a significant impact on demand and inflation, and play an important role in the transmission mechanism of monetary policy. Second, rents are an important component of the consumer price index and therefore need to be closely monitored in the assessment of the risks to price stability. Third, various episodes of boom and bust in house (and other asset) prices in a number of developed economies have drawn attention to their role in shaping the financial and business cycles and on the implications of sharp price fluctuations for financial stability. Finally, the functioning of the housing market may have implications for the supply side of the economy, especially for labour mobility in the EU.

### I.2 Housing markets, economic activity and the transmission mechanism of monetary policy

The link between housing markets and the rest of the economy operates primarily through the effects of house price fluctuations, as they represent the main source of fluctuations in housing wealth. Changes in house prices may be caused by a variety of factors that affect both the supply of and the demand for housing.<sup>1</sup> Moreover, house prices, like other asset prices, are

interest rate-sensitive and respond to changes in the monetary policy stance, thereby contributing to the transmission of monetary policy impulses to the economy.<sup>2</sup>

Economic research has identified various channels through which changes in house prices are likely to affect economic activity.

A first channel operates through the effect of house price fluctuations on *residential construction*. A rise in house prices which causes an increase in the market value of the housing stock relative to its reproduction cost, stimulates the construction of new dwellings as well as the renovation of existing dwellings. This effect is expected to build up quite gradually as it takes time to implement housing investment projects and there may be constraints related to the availability of land for construction, planning policy and competition conditions in the construction sector. Residential investment represents about 4.9% of the gross domestic product (GDP) in the EU and 5.5% of GDP in the euro area, varying between about 2.1% to 8.8% of GDP in the different countries (see Table I.1).

A second impact of changes in house prices often discussed in literature is the *wealth effect* on non-housing consumption expenditure and, thereby, on aggregate demand in the rest of the economy. In this respect, it should be taken into account that houses (contrary to other assets such as

<sup>1</sup> See Section 2 of this report.

<sup>2</sup> In general, an unanticipated decrease in short-term interest rates should lead to an increase in house prices. In fact, to the extent to which lower short-term interest rates are reflected in lower mortgage rates, this may increase the demand for housing property and, thereby, house prices (given an inflexible supply in the short run). As holds true of other asset prices (e.g. bonds and equities), higher house prices must reflect the increase in the current value of services flows (and rent payments) from housing. Other effects may derive from increased income expectations, changes in financial asset prices and from expectations of further house price increases and speculative behaviour. See Muellbauer and Murphy, "Booms and busts in the UK housing market", *Economic Journal*, November 1997, pages 1701-1727.

**Table I.1****Overview of EU housing sector***(in %)*

	Ratio of residential investment to GDP	Share of owner occupied dwellings <sup>1)</sup>	Ratio of mortgage debt to GDP <sup>2)</sup>	House price inflation (nominal) <sup>3)</sup>	Rent inflation	HICP inflation
	2001	Latest available	2001	2001	2001	2001
<b>Belgium</b>	4.8	72	28	5.3	1.9	2.4
<b>Germany</b>	6.3	39	47	2.0	0.8	2.1
<b>Greece</b>	4.8	80	12	11.3	4.0	3.7
<b>Spain</b>	7.3	85	32	15.5	4.1	2.8
<b>France</b>	4.2	58	22	6.5	0.5	1.8
<b>Ireland</b>	8.8	78	30	8.0	14.4	4.0
<b>Italy</b>	4.5	69	10	5.7	2.1	2.3
<b>Luxembourg</b>	3.2	67	29	9.1	3.0	2.4
<b>Netherlands</b>	5.8	53	74	9.7	2.6	5.1
<b>Austria</b>	5.0	56	30	-2.9	2.8	2.3
<b>Portugal</b>	5.7	64	47	3.6	2.6	4.4
<b>Finland</b>	4.5	64	21	-0.8	3.9	2.7
<b>Denmark</b>	3.5	59	67	5.8	2.7	2.3
<b>Sweden</b>	2.1	53	58	7.9	1.7	2.7
<b>United Kingdom</b>	2.8	68	60	8.1	3.3	1.2
<b>Euro area</b>	5.5	60	33	6.8	1.3	2.5
<b>EU</b>	4.9	61	39	7.1	1.6	2.3

Source: See Annex 1.

- 1) Weights for the average euro area and EU share of ownership are based on the latest available number of dwellings per country.
- 2) The ratio of mortgage debt to GDP reported here is not strictly comparable across countries. The ratios of euro area and EU average mortgage debt to GDP should therefore also be treated as approximations. See Section 5.
- 3) House prices for Germany refer to West Germany, while they refer to 2000 and 1999 in the case of Luxembourg and Austria respectively. Euro area and EU GDP-weighted average house prices.

bonds or equity) also provide services to households.<sup>3</sup> In particular, house prices reflect the current value of the stream of future expected rents (or imputed rents for owner-occupiers).<sup>4</sup> If higher rents are the main driving factor, then a rise in house prices will not only increase the market value of the wealth of house owners, but also reflect a higher cost of consuming housing services for both owner-occupiers (in the form of higher imputed rents) and tenants in the rental market sector. In this case, changes in house prices may have ambiguous effects on non-housing consumption as they entail a redistribution of resources between tenants and prospective new buyers, on the one hand, and current homeowners, on the other.<sup>5</sup> The total effect on non-housing consumption will depend on their different reactions. It is commonly believed that the higher the proportion of owner-occupiers, the larger

will be the consumption response to a rise in house prices.<sup>6</sup> The proportion of owner-

3 See D. Miles, "Housing, Financial Markets and the Wider Economy," New York 1994: Wiley.

4 House prices are linked to rents through the arbitrage condition between rents and the user cost of houses. See Section 3 of this report.

5 Increases in house prices will generally be to the benefit of those who aim to "trade down", i.e. move to a smaller house, but harm those who aim to "trade up". However, it may not be possible for the society as a whole to collectively trade down. The housing market is typically a "closed" domestic market and homeowners cannot in the aggregate realise their capital gains. Unless houses are traded internationally, the gain of a last-time seller is also a loss for a first-time buyer in the same country. See D. Miles (1994), *op. cit.*

6 For owner-occupiers, the positive wealth (and substitution) effect of higher house prices on non-housing consumption is generally believed to dominate the negative income effect (higher imputed rents). The effects on consumption are unambiguously negative for tenants in the rental market sector and for prospective new buyers who have to save more for down-payments and can expect higher prices. The effect is unambiguously positive for landlords and/or institutional investors owning rental houses. See D. Maclennan, J. Muellbauer and M. Stephens, "Asymmetries in Housing and Financial Market Institutions and EMU", CEPR discussion paper No. 2062, London 1999.

**Table 1.2**  
**Selected comparative studies reporting long-run elasticities of housing market wealth (prices) in consumption functions**

(\* denotes significance at conventional levels)

Study	Housing wealth
<i>Ludwig/Slok (2002)</i>	
Panel of 16 OECD countries	
– All countries	0.036 *
– Market-based countries (including e.g. the United States, the United Kingdom, the Netherlands and Ireland)	0.043 *
– Bank-based countries (including e.g. Germany, France, Italy, Spain, Belgium and Finland)	0.015
Based on house prices	
<i>Case/Quigley/Shiller (2001)</i>	
Panel of 14 developed countries	0.131 - 0.166 *
Based on wealth data	
<i>Boone/Girouard/Wanner (2001)</i>	
– United States	0.03
– France	0.05
– Italy	-0.06*
Based on wealth data	
<i>Eschenbach/Schuknecht (2001)</i>	
– United States	0.16 *
– Germany	not significant
– France	0.05
– Italy	not significant
– Average of 17 OECD countries	0.07
Based on house prices	

Sources: Ludwig and Slok: “The impact of changes in stock prices and house prices on consumption in OECD countries”, IMF Working paper 02/1, 2002; Case, Quigley and Shiller: “Comparing wealth effects: the stock market versus the housing market”, NBER Working Paper No. 8606, 2001; Boone, Girouard and Wanner: “Financial market liberation, wealth and consumption”, OECD Working paper No. 308, 2001; Eschenbach and Schuknecht: “Asset prices and fiscal balances”, ECB Working Paper No. 141, 2002.

occupiers varies substantially in EU countries, ranging from 39% to 85% (see Table I.1).<sup>7</sup>

If the increase in house prices is due to a decline in interest rates (which is expected to be long lasting and not related to lower growth expectations), then a positive effect on (non-housing) consumption is more likely to emerge, as the gain of homeowners would not be accompanied by a loss of prospective new buyers. The latter could also finance the acquisition of a house at a lower cost.

The above considerations make it clear that it is important to analyse the factors driving house price movements in order to evaluate their implications for the economy. In general, the impact of house price changes on economy activity may vary, depending on the source of the economic shock causing the price changes.

An increase in the market value of residential property can also affect consumption via a third important channel that has been emphasised in recent economic literature, namely the *credit channel*. Credit market imperfections, arising from asymmetric information and the associated screening and monitoring costs in the banking sector, imply that consumers and firms face an external finance premium on the financing of loans and/or constraints on the possibility of borrowing against their future income. In the so-called “financial accelerator” model, the external finance premium and the borrowing constraints depend on the quality of balance sheets and the level of net worth of

<sup>7</sup> Moreover, the fact that, empirically, rents react sluggishly to housing market conditions (which depends, inter alia, on the regulatory framework for the rental market) also suggests that house price movements may predominantly have a positive consumption effect in the short term (see Section 3).

borrowers.<sup>8</sup> Fluctuations in the market value of residential property affect the collateral value of the assets of firms and households and, therefore, the level of the external finance premium and the availability of loans. An increase in property prices (both commercial and residential property) permits households and firms to borrow more to finance consumption and investment. This mechanism thus has the potential of amplifying the propagation of monetary impulses to the economy.<sup>9</sup> Various structural characteristics of the retail finance and mortgage markets (such as the degree of competition and the level of transaction costs) influence the ability of house owners to extract the equity embodied in housing wealth and, therefore, the quantitative impact of this channel of transmission. Available evidence shows that house equity withdrawal appears to be of major quantitative importance in only a few EU countries.<sup>10</sup>

Finally, besides the effects of variations in house prices, housing markets contribute to the transmission mechanism of monetary policy via a fourth channel, i.e. via the effects of monetary policy changes on households' *disposable income* through the mortgage market. Changes in mortgage rates caused by a change in the monetary policy stance will directly affect households' disposable income (net of interest payments) and, thereby, their consumption and investment decisions, as mortgage payments are an important part of total household costs. The size of the mortgage debt outstanding and the characteristics of the mortgage contracts (and, thereby, the sensitivity of mortgage rates to short-term interest rates) are crucial factors in this context. For example, when mortgages are predominantly at a fixed rate of long duration and if refinancing is not a common practice, the short-term interest rate effect on disposable income will be small. The total amount of average mortgage debt outstanding is about 39% of GDP in the EU and 33% in euro area, but this proportion varies substantially among countries (see Table I.1). Clearly, the household sector is ultimately also the recipient of the larger interest flows,

so that the final effect on consumption will depend on the distributional impact of the change in mortgage rates.<sup>11, 12</sup>

*Empirical analysis* seeking to evaluate the effects of changes in house prices on aggregate demand and real activity is severely curtailed by data availability problems, particularly in euro area countries. Despite these limitations, some authors have tried to quantify the effects of variations in house prices and housing wealth on economic activity in general, and on consumption in particular. Not surprisingly, the empirical results are often mixed. Table I.2 summarises the results of some selected studies, reporting the elasticities of consumption with respect to housing wealth.<sup>13</sup> Overall, the results could be consistent with a positive

8 See B. Bernanke, M. Gertler and S. Gilchrist, "The Financial Accelerator in a Quantitative Business Cycle Framework", in J. Taylor, and M. Woodford (eds.), *The Handbook of Macroeconomics*, Vol. 1, North-Holland, Amsterdam 1999.

9 See M. Iacoviello, "House prices, borrowing constraints and monetary policy in the business cycle," Boston College, mimeo, 2002.

10 See Section 5.

11 More generally, the income effect of changes in interest rates on consumption will depend on the net financial worth position of the household sector (associated with interest receipts/payments), which is positive in EU countries.

12 Moreover, further to the issues related to interest servicing, the need to service principal may become important in two particular situations: (a) following a period of over-borrowing by households, a change in the underlying economic conditions may force households to increase their savings rate disproportionately in order to service the principal. Consequently, the volatility of consumption and investment are exacerbated and recessions tend to be deeper and more prolonged; (b) in deflationary periods, which may occur in conditions of sudden, unexpected and extremely weak demand, the real value of debt keeps rising, even if it is stable in nominal terms. In such situations, real income is likely to be growing very moderately, or may even be declining, a vicious cycle of a continuously rising real debt burden that leads to weaker demand may take place.

13 The figures reported are the result of different definitions of variables, sample periods, specifications of the consumption functions and estimation methods, and are therefore not comparable. A major difficulty in estimating this effect is that, as mentioned above, the consumption response will depend on the source of the shock affecting housing prices and wealth. Some of these shocks may affect housing prices (and housing wealth) and consumption contemporaneously, making it difficult to identify their direct impact on consumption, i.e. there is an intrinsic problem of endogeneity in estimating the relationship between house prices and consumption. In this respect, a promising approach is followed by Iacoviello (2002, op. cit.) who analyses the effects of various shocks in the context of a calibrated dynamic general equilibrium model. He finds that the effect of an exogenous shock pushing up house prices (modelled as a change in preferences) implies a short-run elasticity of consumption to house prices of 7%. In the context of his model, most of the effect is due to the presence of borrowing constraints and the operation of the credit channel.

effect of changes in house prices on consumption, but the precise magnitude of such an effect remains unclear for most EU countries.<sup>14</sup>

### **1.3 Rents and the Harmonised Index of Consumer Prices**

Through the mechanisms described above, developments in housing markets affect aggregate demand in the economy and thereby also price developments. However, housing markets may impact inflation more directly via the rental housing market.

Rents are in fact an important component of the consumer price index which is referred to in the monetary policy assessment of the risks to price stability. Changes in rents have a contemporaneous and potentially sizeable effect on consumer price inflation as measured by this index. The weight of rents in headline HICP (excluding owner-occupied imputed rents which are not included in the HICP) in both the EU and the euro area currently accounts for about 6% of the total index.<sup>15</sup> Changes in rents as a result of, for example, national tax policies or regulations have the potential of generating important second-round effects on price developments, in particular because they may impact on wage contracts.

### **1.4 House prices, credit developments and financial stability**

Another reason for the increased interest in housing markets stems from their role in the propagation mechanism of financial and business cycles and the potential implications of changes in housing wealth for financial stability. As the previous discussion has highlighted, a positive correlation between credit and property (and other asset) prices can be explained from both a credit demand and a credit supply perspective as a direct implication of the “financial accelerator” mechanism.

In expansionary phases, households and firms face improved financing conditions for their consumption and investment decisions, which in turn stimulate higher credit availability, higher demand and higher asset prices. The upward expansion may be further accelerated if “irrational exuberance”, over-optimism and speculative price-to-price behaviour phase in, driving asset prices above their fundamental determinants.<sup>16</sup>

In phases of contraction, the process is reversed. Falling commercial and residential property prices undermine the quality of households’ and firms’ balance sheets, thus possibly leading to a credit crunch and depressive effects on the economy. The mechanism involved may be highly non-linear: when there is plenty of collateral, a fall in asset prices which still leaves a considerable cushion may have no impact at all, while the impact may be considerable if balance sheets are more stretched.

According to the Bank for International Settlements (BIS), over past decades, movements in property prices, in particular those of commercial property, have been central to the most pronounced financial cycles, and substantial booms and busts in this market lie behind many of the problems experienced in Australia, Japan, the United States, the United Kingdom and the Nordic countries in the late 1980s and early 1990s. Developments in residential property prices have also shaped financial cycles, especially by creating financial headwinds during economic downturns, which have retarded

<sup>14</sup> A common finding across several empirical studies is that, in recent years, a number of structural factors such as institutional changes in the housing market and better availability of housing finance for private investors appear to have strengthened the link between house price fluctuations and consumption and that the sensitivity of consumption to changes in house prices has increased over the past 20 years.

<sup>15</sup> The weight of housing-related expenditure (including rents and running costs) in the HICP is about 15%.

<sup>16</sup> However, it should be kept in mind that house price fluctuations are part of the normal functioning of the housing market and do not necessarily reflect “bubbles” (see Section 2).

economic recovery.<sup>17</sup> Moreover, an observed upward trend in household indebtedness in a number of countries could in future increase the potential for financial headwinds in the presence of an extended economic slowdown and/or a significant increase in interest rates.

Monetary policy may face a certain dilemma in the event of a strong boom in the housing market taking place in a relatively weak general economic environment with low inflationary pressures on consumer prices. In these circumstances, lower official interest rates could fuel the boom or even a bubble further, thus later aggravating a possibly sharp downward correction of house prices with negative consequences for the overall economy.

### **1.5 Housing markets and the supply side**

Finally, developments in housing markets may have important implications for the supply side of the economy, especially for labour mobility.<sup>18</sup> To the extent that large differences in house price levels, frictions, low transparency, high transaction costs and the existence of (non-portable) housing-related benefits in housing markets prevent labour mobility, they hinder the complete adjustment of labour markets following economic shocks, which imply asymmetric effects across regions. Due to its lower transaction costs, an efficient rental market is also important for labour mobility. Available evidence tends to suggest that current housing arrangements in the EU could represent an impediment to labour mobility, in addition to other structural and institutional factors. By increasing the efficiency of the housing market, housing market policies can enhance labour mobility and be expected to contribute to increasing sustainable non-inflationary growth.

### **1.6 Concluding remarks**

Against the above background, it is clear that it is important for monetary policy to include

the analysis of housing markets in its overall assessment of economic conditions. The following aspects, which are explored in more detail in the rest of this report, appear of particular relevance.

First, house price fluctuations are an important nexus between the housing market and the rest of the economy, and can play a role in the transmission mechanism of monetary policy. Understanding the factors that drive house prices is crucial for evaluating the impact of the housing market on the overall economy. In particular, monetary policy cannot react mechanically to house prices (nor to other asset prices), but needs to identify the source and nature of the shocks driving house price fluctuations in order to understand their implications for the outlook for price stability and to formulate the appropriate policy response.

Second, understanding the functioning of the rental sector is important because rents are a direct cost for a large number of households and an important component of the overall consumer price index.

Third, public policies (taxes/subsidies/regulations) which affect the functioning of the housing market can be sources of independent shocks or may affect the way housing markets react to economic shocks. Moreover, it is important that housing policies are put in place that do not hinder the flexibility of labour markets, in particular by reducing labour mobility, and thereby the capability of countries and regions to respond

<sup>17</sup> See Bank for International Settlements, 71<sup>st</sup> Annual Report, 2001. See also K. Okina, M. Shirakawa and S. Shiratsuka, "Asset Price Bubble and Monetary Policy: Japan's Experience in the Late 1980s and the Lessons", Monetary and Economic Studies, 19(S-1), Special Edition February 2001, pages 395-450. According to the BIS, the liberalisation of financial markets over the past few decades, while having improved the provision of financial services and the allocation of resources, has also increased the scope for pronounced financial cycles and the amplification of cycles in the economy (see Bank for International Settlements, 72<sup>nd</sup> Annual Report, 2002).

<sup>18</sup> See L. Cannari, F. Nucci and P. Sestito, "Geographic labour mobility and the cost of housing: evidence from Italy", Applied Economics, No. 32, 2000; G. Hughes and B. McCormick, "Housing Policy and Labour Market Performance", DETR, 2000; and Maclennan, Muellbauer and Stephens (1999), *op. cit.*

efficiently to economic shocks in a single currency area.

Finally, mortgage and housing markets are strongly interlinked. Developments in mortgage rates and credit conditions affect house prices and thereby housing wealth. At the same time, fluctuations in house prices affect the collateral value of housing assets

and therefore the credit condition of households. Examining the institutional arrangements in the mortgage market is the key to understanding this two-way relationship. For monetary policy, this relationship is important because it affects the transmission mechanism of monetary policy. Moreover, it may in some circumstances impact on the stability of the financial sector.

## **2 House price dynamics and their determinants**

### **2.1 Introduction**

House price volatility, although generally lower than the volatility of financial asset prices, can have important effects on economic activity and financial stability. Housing assets represent a substantial part of households' portfolios, and even moderate house price fluctuations give rise to significant capital gains or losses. The actual impact of these gains and losses on the consumption, savings and borrowing decisions of households is likely to depend on the history of the housing market and the structure of credit markets. A period of large changes will inevitably concentrate households' minds on potential capital gains in the housing market. This in turn is likely to make the housing market look more like a financial asset market. The more households take accrued or potential short-term capital gains/losses into consideration, the more the market is likely to be subject to fluctuations due to changes in consumer confidence, expectations and trading strategies. Phenomena of "irrational exuberance" that lead to bubbles may also set in.

The above considerations have prompted economic literature to examine the factors driving house price dynamics in some detail. Important questions have been, first, whether housing market fluctuations are an independent source of shocks or whether they just reflect macroeconomic fluctuations and, second, whether certain institutions and policies can amplify or dampen the effect of a macroeconomic shock on house prices. Cross-country differences are far more difficult to analyse, not least because of severe problems in the comparability and reliability of house price data (see Box 1 on the "Accuracy and comparability of house price data"). Cross-country studies using a common methodology to examine different national housing markets are rare.

With these caveats in mind, this section describes the house price trends and cycles in the EU countries since 1980 and provides an overview of the main findings of empirical literature on the determinants of house price dynamics. It differentiates between what appear to be reasonably common cross-country features of housing markets in the EU countries and country-specific features.

**Box I****Accuracy and comparability of house price data**

House price indices are constructed on the basis of non-harmonised national data from a variety of public and/or private sources (national statistical services, mortgage lenders, real estate agents). National house price series differ in their geographical coverage (e.g. main cities or country-wide), the coverage of the types of dwellings (new or existing, flats or single houses, etc.), and they often cover only certain types of dwelling transactions (only mortgage-financed or real estate brokered transactions). Most series are based on average square metre prices, with varying degrees of correction for changes in the size of the dwellings involved in transactions and their location (e.g. urban centre, periphery, etc.). Other quality adjustments are rare.

The table below provides a summary description and source of the house price indices used in this report.

**Description and sources of house price indices used in the report**

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy
<b>Description</b>	Existing, small and medium-sized dwellings	New and existing dwellings	New dwellings, West Germany	New and existing dwellings in urban areas outside Athens	New and existing, excluding subsidised dwellings	Existing individual and collective offered by real estate agents	New and existing dwellings (simple average)	New and recently restructured dwellings
<b>Source</b>	Real estate sector	National Statistical Institute	Bundesbank estimate based on land prices and residential construction price index from Federal Statistical Office	Bank of Greece	Ministry of infrastructure and urban planning	Real estate sector	Department of Environment and Local Government based on data on loan approvals	Banca d'Italia based on real estate sector data
	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom	
<b>Description</b>	New and existing one family houses, apartments and apartment houses	New and existing one-family houses and flats	New and existing in the area of Vienna	New and existing dwellings	Existing flats brokered by real estate agents. Hedonic adjustment	Existing one or two-dwelling buildings	New and existing dwellings	
<b>Source</b>	Banque centrale du Luxembourg based on National Statistical Institute data	De Nederlandsche Bank based on land registry data	Real estate sector	Banco de Portugal based on real estate sector data	National Statistical Institute based on real estate sector data	National Statistical Institute	UK Government Department (Office of the Deputy Prime Minister based on a 5% survey of mortgage lenders	

The impact of these methodological differences on the reliability and comparability of the house price series is difficult to judge a priori. Differences in coverage may have a particularly important effect on the short-term dynamics of the series. For example, house prices based on samples of large cities are likely to be far more volatile than country-wide data. Changes in the composition of the basket may both introduce “noise” in the series (non-systematic errors) and affect the long-term trend of house prices. For example, a lack of adjustment for location may introduce a downward bias in a price index for new dwellings, as these tend to be further away from the urban centres as time progresses, whereas the lack of adjustment for quality improvements is likely to give the price series an upward bias.

In the absence of reliable house price data, an alternative approach is to use land prices and construction costs in order to approximate the evolution of house prices over time. This approach is chosen for estimating a “surrogate” house price series for West Germany. In theory, a combined series of land prices and construction costs should track developments in house prices, but this is not the case in practice in countries where all three series are available (see below). Like house prices, land prices suffer from quality adjustment problems and, in most countries (but not in Germany), they are based on a relatively small number of transactions.



## 2.2 Overview and long-term growth of real house prices since 1980

Real house prices in most EU countries have followed long cycles around an upward trend. In the period under examination (1980-2001), the length of the cycles seems in most cases to have been ten years or more, and the amplitude has generally been high (see Chart 2.1). During the upturn between the late 1980s and early 1990s, real house prices (deflated by the private consumption deflator)<sup>19</sup> typically rose by 30% or more from trough to peak and lost part of this increase in the subsequent downturn. Since about the mid-1990s, real house prices have risen at an accelerated pace in most EU countries, particularly so in Ireland and the Netherlands.

The latest data for 2002 show signs of a deceleration of house price inflation in Ireland and the Netherlands, but double-digit annual growth rates in real house prices in Spain and the United Kingdom. Greece and Italy have recently also experienced rapidly increasing house prices. For a number of EU countries, real house prices in 2002 were at their highest levels since 1980.

In all countries except Sweden, real house prices have risen over the long run, often

substantially so. With the exception of Ireland, average growth rates of over 3% were only reported for countries with short time series of house prices (see Table 2.1). A long-term trend of real house prices in the range of 0% to 3% is what one typically finds when looking at long time series in the EU countries.

In the long run, the growth of house prices should be approximately equal to that of supply costs, including the cost of land.<sup>20</sup> Table 2.1 shows the average long-term growth rates of real construction costs (excluding land costs) and the real prices of land for construction purposes. All variables are deflated with the private consumption deflator. The increase of real construction costs (the cost of building materials and labour) was not the prime reason for the real house price rise. In some cases, as in Ireland, the scarcity of labour in the construction industry pushed construction costs up, but even in this case the long-term growth of

<sup>19</sup> Throughout the report, the private consumption deflator is used to calculate real house prices. Overall, results change very little if the HICP or the HICP excluding the rent item are used instead.

<sup>20</sup> Another way of saying this is that, in the long run, Tobin's  $q$  in housing (= market value/replacement value) should be constant (and presumably close to unity), as is the case for every investment good.

**Table 2.1**  
Annualised growth rate of real house prices, real construction costs and real land prices  
(in %)

Period	Belgium 1981-2001	Denmark 1980-2001	Germany 1980-2001	Greece 1994-2001	Spain 1987-2001	France 1980-2001	Ireland 1980-2001	Italy 1980-2001
House prices	1.2	1.0	0.5	3.5	4.2	1.4	3.7	1.2
Construction costs	-0.5	0.0	0.1	0.1	-0.8	-0.7	1.5	-0.6
Land prices	1.8	1.2	1.1	-	-	-	-	-
Period	Luxembourg 1980-2000	Netherlands 1980-2000	Austria 1987-1999	Portugal 1988-2001	Finland 1981-2001	Sweden 1980-2001	United Kingdom 1980-2001	
House prices	2.6	2.3	3.5	0.4	1.9	-0.2	3.0	
Construction costs	0.3	0.0	1.2	0.7	1.1	-0.4	1.4	
Land prices	6.3	1.9	3.1	2.8	-	1.3	5.2	

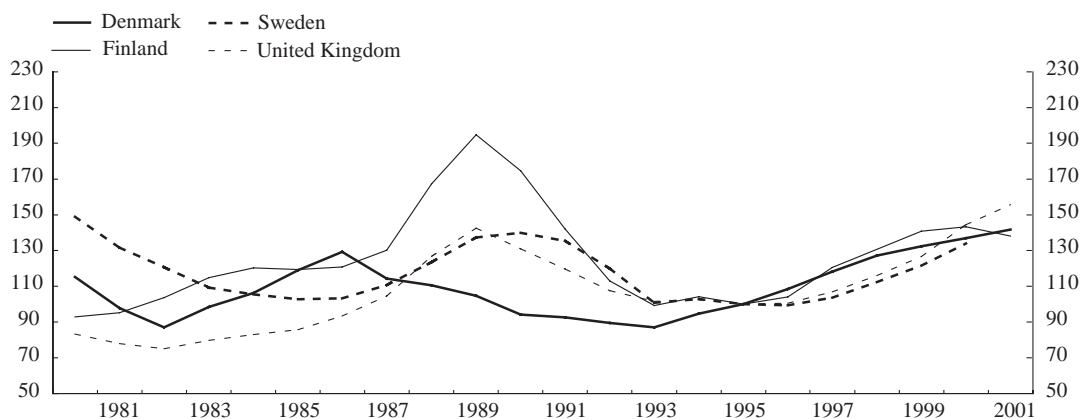
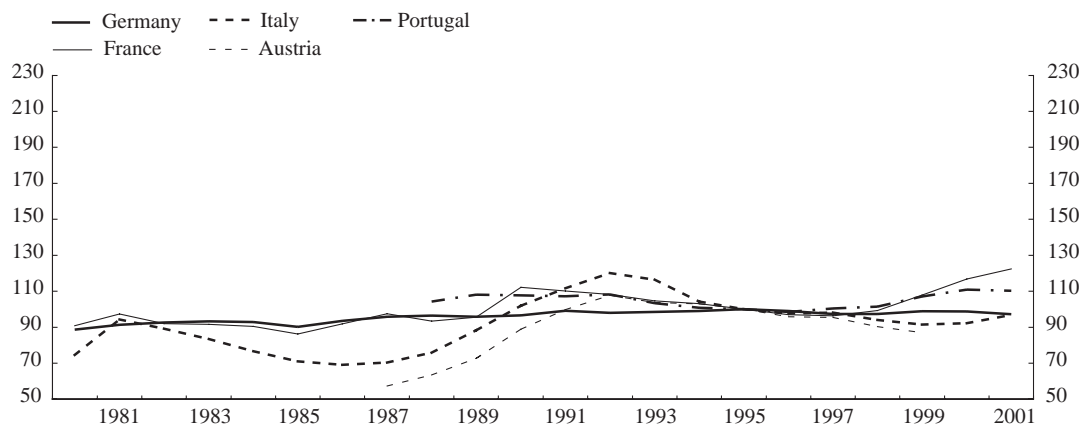
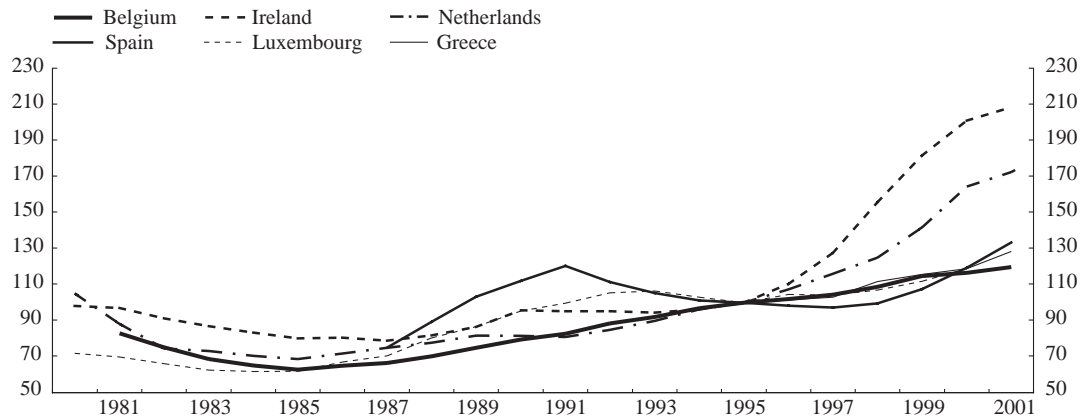
Sources: National sources, ECB calculations. Also see Annex 2.

Notes: All variables are deflated with the private consumption deflator. Land prices refer to the following periods: 1990-1999 in the case of the Netherlands; 1990-1999 in that of Austria; 1980-1998 in that of Sweden; and 1981-2000 in that of the United Kingdom. In the case of Portugal, construction costs refer to the period from 1994 to 2001. Germany refers to West Germany.

## Chart 2.1

### Real house prices

(index 1995 = 100)



Source: See Annex 2.

Note: Germany refers to estimated house prices in West Germany.

construction costs has remained well below house price inflation. Instead, the long-term growth of real prices of land for construction purposes has generally been much higher and closer to the growth of house prices.

In the long run, as a scarce resource, the cost of land is expected to increase as demand for space rises. Planning rules, but also transport and other infrastructures, will also affect the premium on land for construction purposes over other types of land. Planning rules and infrastructures may well vary from location to location, even within a country.<sup>21</sup> Thus, the local scarcity and cost of construction land, combined with the low demand substitutability for dwellings in different locations, mean that *the forces of house price equalisation are weak even within a single country and even in the long run.*

This is clearly seen when comparing house prices in the capital cities with those for the rest of the country. Over periods of 15 to 20 years, the former are typically found to rise 1 to 2 percentage points faster per annum than those in the rest of the country. Such inflation differentials can only persist over the long run if the rise of land prices is persistently different in the capital city than in the rest of the country.

### 2.3 Cyclical volatility and synchronisation of EU house prices

The typical path of real house prices in many EU countries contains cyclical movements of both long and short duration. This is illustrated in Chart 2.2 for Finland, which provides a particularly clear example. The house price series for Finland is decomposed into a long cycle (over eight years), short to medium-run cyclical movements (between one-and-a-half and eight years) and “noise”.<sup>22</sup> The chart shows both the long cycle, peaking in 1989, and the shorter-term cyclical movements, some of which are very sharp. In less than three years, from the third quarter of 1986 to the first quarter of 1989, real house prices in Finland grew by a cumulative

65% and subsequently fell by a cumulative 50% in four years.

In the last twenty years, most EU countries have experienced such a combination of long and short house price cycles, including periods of sharp growth and decline in real house prices. Defining “booms” and “busts” as periods with uninterrupted changes of at least 10% per annum in real house prices, we find that there have been 18 country-specific booms in the EU (13 in the euro area) and ten busts (five in the euro area) in the period under observation.<sup>23</sup> Not every boom was followed by a bust, and vice versa, but booms were typically followed by long periods of very low growth or even of decline in real house prices. On average in the four years after a boom, real house prices fell by close to 3% per annum. The only EU countries not to have experienced a boom or a bust in the period under consideration are Germany and Portugal, but house price data for Portugal only extend back to 1988.

Almost half of the “booms” and “busts” took place in the three Nordic countries and in the United Kingdom. The relatively high volatility of house prices in these countries is to some extent also confirmed in Table 2.2, although any ranking of countries in terms of the cyclical volatility of house prices should be viewed with caution. Such ranking can change substantially, depending on the period examined and on the house price series as well as on the volatility measure used. In particular, the results for

21 Empirical literature on the United States confirms that zoning rules that affect the availability and cost of construction land also affect the affordability of housing. See E. L. Glaeser and J. Gyourko, “The impact of zoning on housing affordability”, National Bureau of Economic Research, working paper 8835, 2002.

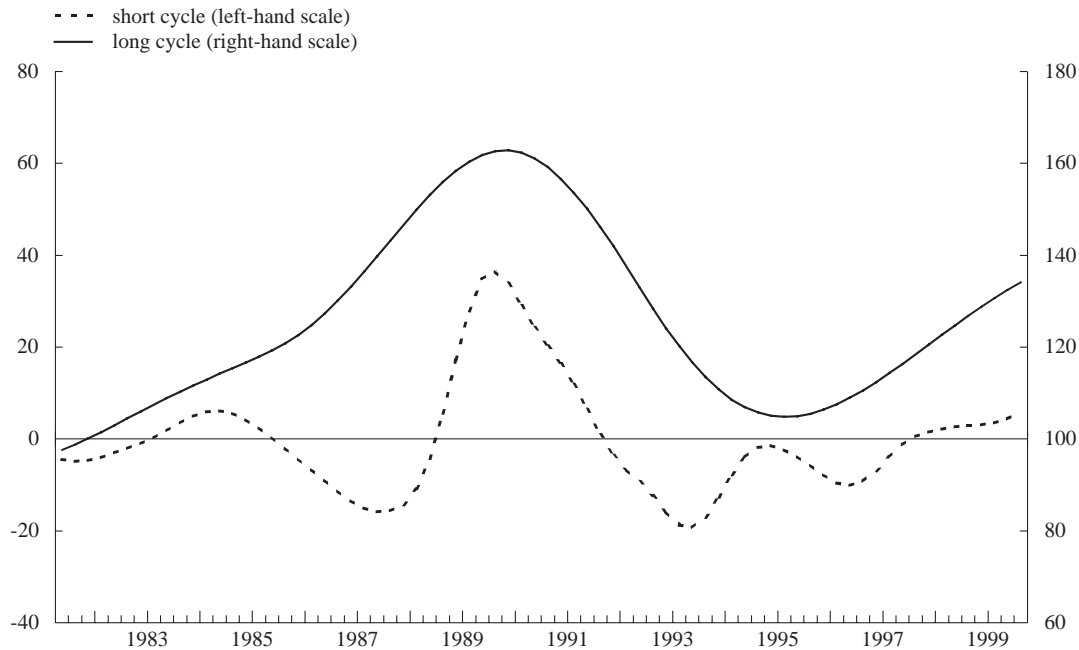
22 The Baxter and King filter was used for the decomposition. The frequencies were chosen to correspond with what is commonly used to decompose cycles from trend in real GDP. For many EU countries, we find that the short cyclical movements in real house prices are closely correlated with the real GDP cycle.

23 There is no established definition for booms and busts. The 10% threshold was therefore chosen arbitrarily. The periods from 1986 to 1991 in Luxembourg and from 1983 to 1985 and 1987 to 1990 in Denmark are counted as single boom or bust periods, although there were intermittent years in all three cases when real house prices changed by less than 10% in absolute terms.

## Chart 2.2

### Decomposition of the real house price cycle in Finland

(real house prices measured as an index: 1995 = 100)



Source: ECB estimation; also see Annex 2.

Ireland and the Netherlands depend heavily on whether one attributes their recent house price growth to a (very long) cycle or to an upward sloping trend. The linear trend used here attributes the recent price changes to the cycle and, consequently, both countries are ranked among those with high house price volatility.<sup>24</sup>

Table 2.2 also shows that house price volatility can vary substantially within countries. In general, when compared over

the same period of time, house prices in capital cities tend to be much more volatile than in the rest of the country.<sup>25</sup> This may

<sup>24</sup> Annual data and a linear trend are used for reasons of comparison. Given the very long cycles of house prices and the available series of 21 years, other de-trending techniques do not seem appropriate. Volatility statistics across countries are not strictly comparable because of different periods of observation.

<sup>25</sup> Note that capital city prices are deflated here by the nation-wide private consumption deflator. Consumer prices may also be more variable in the capital cities than in the countryside, but this is unlikely to change the above results significantly. For example, the standard deviation of de-trended house prices in Rome, deflated with the Rome-specific CPI, is 17.6 for the period 1981-2001.

## Table 2.2

### Cyclical volatility of real house prices

(standard deviation of de-trended series; real house prices measured as an index: 1995=100)

Period	Belgium 1980-2001	Denmark 1980-2001	Germany 1980-2001	Greece 1994-2001	Spain 1987-2001	France 1980-2001	Ireland 1980-2001	Italy 1980-2001
Country	10.4	14.9	1.8	4.9	11.7	6.7	25.8	12.5
Capital	10.5	20.0	-	9.8	12.7	21.1	31.7	16.8
Period	Luxembourg 1980-2000	Netherlands 1985-2001	Austria 1987-1999	Portugal 1988-2001	Finland 1980-2001	Sweden 1981-2001	United Kingdom 1980-2001	
Country	7.3	16.9	13.5	4.1	26.2	15.0	16.2	
Capital	-	15.8	-	4.6	34.8	23.4	24.0	

Sources: National sources, ECB calculations. Also see Annex 2.

Note: Germany refers to West Germany.

**Table 2.3****Correlation of de-trended real house prices and of de-trended real stock market prices with the respective weighted euro area and EU averages**

Period	Belgium 1980-2001	Denmark 1986-2001	Germany 1980-2001	Greece 1994-2001	Spain 1987-2001	France 1980-2001	Ireland 1983-2001	Italy 1980-2001
House prices in euro area	0.36	-0.44	0.01	0.80	0.90	0.73	0.19	0.22
House prices in the EU	0.18	-0.20	0.01	0.82	0.91	0.81	0.28	0.07
Stock market prices in the EU	0.81	0.88	0.95	0.78	0.95	0.91	0.86	0.90

Period	Luxembourg 1985-2000	Netherlands 1985-2001	Austria 1987-1999	Portugal 1988-2001	Finland 1980-2001	Sweden 1980-2001	United Kingdom 1980-2001
House prices in euro area	0.93	-0.15	0.79	0.69	-0.10	0.65	0.27
House prices in the EU	0.78	0.16	0.41	0.93	0.39	0.87	0.34
Stock market prices in the EU	0.94	0.83	0.02	0.91	0.84	0.90	0.89

Sources: National sources, ECB calculations. Also see Annex 2.

Notes: All prices are deflated with the private consumption deflator and de-trended using a linear trend. The weighted average of de-trended real house and stock market prices for the euro area and the EU is constructed using the country GDP weights. The coefficients reported refer to the correlation between the house prices or stock market prices in each country and the respective euro area or EU average series excluding the country in question. House price data for Germany refers to West Germany.

simply reflect an aggregation bias. When aggregating at the national level, many of the local effects on housing markets cancel out. Even so, the functioning of local housing markets is not irrelevant for the national aggregate. To take an often-cited example, differences between house price volatility in Germany and in the United Kingdom may be partly due to factors such as the distribution of the population and of economic activity in the national territories. Little is known on how such regional questions affect national house price dynamics.

Given the geographical segmentation of housing markets, one would expect a priori that the cycles of house prices in different countries are not highly synchronised. This is confirmed in Table 2.3. The table shows the correlation of real house prices in each country (de-trended) with the weighted average of real house prices (de-trended) in the rest of the euro area and the EU (excluding the country in question). For reasons of comparison, the table also gives the correlation of the general index of stock

market prices in each country with the weighted average stock market index for the rest of the EU (excluding the country in question, also de-trended).<sup>26</sup>

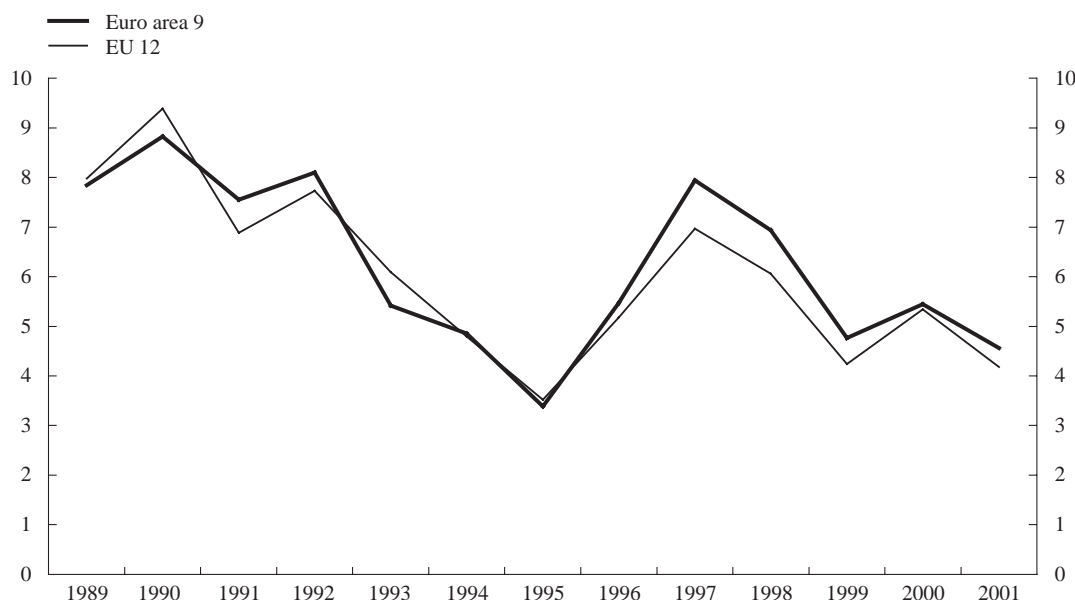
In this case as well, the results for individual countries should be read with caution. They depend on the de-trending method, the series chosen and the period considered. Nevertheless, there are two general conclusions that are robust to different methodologies. First, cyclical correlations between real house prices tend to be significantly lower than between real stock market prices, as would be expected from the geographical segmentation of housing markets. Second, given the local character of housing markets, it is nevertheless surprising that at least some EU countries have had

<sup>26</sup> Annual averages are used for all variables for reasons of comparison. The very low correlation of the Austrian stock price index with the rest of stock price indices in the EU is mainly attributable to the developments in period from 1988 to 1990 when, unlike the rest of the EU, stock market prices in Austria increased sharply.

**Chart 2.3**

**Standard deviation of annual growth rates of real house prices**

(growth rates measured in %)



Source: ECB calculations; see Annex 2.

Note: Excluding Greece, Luxembourg and Austria, due to shorter time series.

relatively synchronous house price cycles in the past 22 years.<sup>27</sup> Chart 2.3 suggests further that the dispersion of growth rates of real house prices across the EU and across the euro area countries has fallen somewhat over the past 15 years.

The correlation of house prices suggests that housing markets in some EU countries may have been significantly influenced by similar developments in macroeconomic factors, such as income growth and interest rate movements. This interpretation is corroborated by existing empirical literature on house prices that finds that disposable income and mortgage interest rates are among the most important determinants of house price dynamics.

## 2.4 Determinants of house price dynamics

As with other asset prices, explaining house price movements econometrically proves to be a difficult task, given the complex dynamics and the importance of expectations, in

particular in periods of booms and busts.<sup>28</sup> Nevertheless, there are some stylised facts established by existing empirical literature. They mostly refer to the United Kingdom, but also find confirmation in studies from other EU countries.<sup>29</sup> In particular, literature

27 Note that for a number of euro area countries (France, Ireland, the Netherlands, Portugal and Finland), the correlation with the weighted EU average turns out to be higher than with the weighted euro area average. This is a consequence of the fact that the house price cycle in these countries has been more correlated with the cycle of non-participating EU countries (the United Kingdom, in particular) than with the rest of the euro area (and Germany, in particular).

28 Given the high autocorrelation of house prices (over the “long” cycle), much of the explanatory power of econometric models of house prices derives from the lagged dependent variables, which are rather uninformative about the underlying mechanism driving house price dynamics. Booms and busts are particularly difficult to account for in an econometric model, even ex post, and are often attributed to “frenzies”.

29 There are only few attempts to consider house price dynamics empirically from a cross-country perspective in the EU. See N. Kennedy and P. Andersen, “Household savings and real house prices: an international perspective”, BIS working paper 20, 1994; P. Englund and Y. M. Ioannides, “House price dynamics: an international empirical perspective”, *Journal of Housing Economics* 6, 1997; M. Iacoviello, “House prices and the macroeconomy in Europe: results from a structural VAR analysis”, ECB working paper 18, 2000; and D. Kasparova and M. White, “The responsiveness of house prices to macroeconomic forces: a cross-country comparison”, *European Journal of Housing Policy* 1(3), 2001.

has found that the principal factors affecting house price dynamics include:

1. household incomes;
2. interest rates (real and possibly also nominal);
3. household formation or other demographic variables;
4. supply side variables;
5. financial market institutions and credit availability; and
6. taxes, subsidies and other public policies directly related to housing.

### Macroeconomic factors

Household income is the single most significant explanatory variable of house prices.

Empirical studies find that, in the long run, the elasticity of house prices with respect to income is close to or below unity. As mentioned above, the main reason why house prices are expected to rise with income in the long run is that income growth generates more demand for living and recreation space and drives up the price of construction land.

Chart 2.4 shows the ratio of house prices to disposable income for all EU countries (index 1995 = 100). For most countries, the trend over the whole period is constant or falling, which means that, all other things being equal, the affordability of owner-occupied housing has remained constant or improved over the long term. In recent times, however, house prices have risen faster than the disposable income in a number of countries and the

**Table 2.4**  
Real house prices and candidate determinants: changes 1995-2001

Period	Belgium 1995-2001	Denmark 1995-2001	Germany 1995-2001	Greece 1995-2001	Spain 1995-2001	France 1995-2001	Ireland 1995-2001	Italy 1995-2001
House prices <sup>1)</sup>	3.06	5.99	-0.46	4.27	4.94	3.43	13.05	-0.88
Real GDP <sup>1)</sup>	2.41	2.37	1.59	3.54	3.64	2.54	9.09	1.86
Real mortgage rates <sup>2)</sup>	-2.20	-2.87	-1.81	-8.23	-3.91	-2.25	-3.56	-3.75
Nominal mortgage rates <sup>2)</sup>	-1.26	-2.66	-1.75	-13.97	-5.44	-2.65	-2.12	-6.91
Residential investment to GDP <sup>3)</sup>	5.00	3.96	7.31	5.02	6.37	4.20	6.55	4.52
Mortgage debt to GDP <sup>2)</sup>	3.70	11.31	8.58	7.48	15.07	1.78	7.46	4.01
Period	Luxembourg <sup>4)</sup> 1995-2001	Netherlands 1995-2001	Austria 1995-2001	Portugal 1995-2001	Finland 1995-2001	Sweden 1995-2001	United Kingdom 1995-2001	
House prices <sup>1)</sup>	3.55	9.53	-3.44	1.64	5.54	6.05	7.65	
Real GDP <sup>1)</sup>	6.76	3.29	2.56	3.45	4.40	2.67	2.74	
Real mortgage rates <sup>2)</sup>	-1.41	-4.89	-0.90	-6.56	-5.09	-3.49	0.74	
Nominal mortgage rates <sup>2)</sup>	-0.97	-1.66	-2.00	-6.60	-2.60	-4.78	-1.95	
Residential investment to GDP <sup>3)</sup>	3.38	5.84	6.48	5.71	4.12	1.71	2.98	
Mortgage debt to GDP <sup>2)</sup>	-1.82	25.90	5.98	28.51	1.00	-5.32	5.62	

Sources: National sources, ECB calculations. Also see Annex 2.

1) Average annual growth rate; house prices for Germany refer to West Germany.

2) Cumulative change in percentage points.

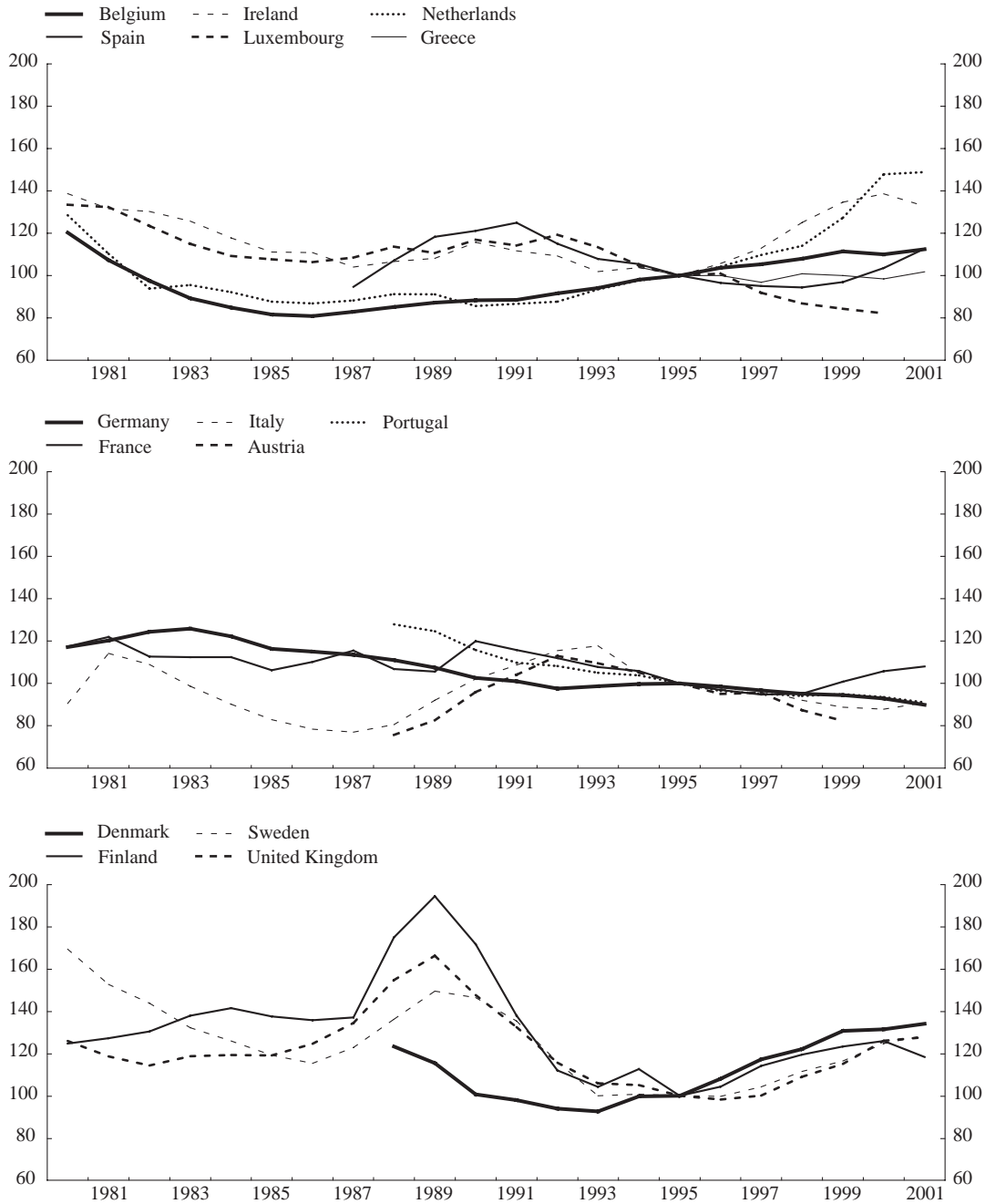
3) Average over the period.

4) In the case of Luxembourg, the change in the mortgage debt-to-GDP ratio refers to the period from 1997 to 2000.

**Chart 2.4**

**Ratio of house prices to disposable income**

(index 1995 = 100)



Source: ECB calculations; also see Annex 2.

Notes: The series for Germany refers to West Germany. West German disposable income after 1991 was estimated by the Deutsche Bundesbank. For Greece and Luxembourg, nominal GDP is used instead of disposable income.



ratio of house prices to income has been at, or close to, its maximum since 1980.

One of the important factors that explain the recent upsurge in house prices is believed to be the drop in real and nominal *interest rates* (see Table 2.4). High nominal interest rates increase the initial debt servicing cost, creating a threshold for less affluent households. Empirical research, mainly on the United Kingdom, suggests that a permanent rise of one percentage point in real mortgage rates results to a drop of between around 2% and 4% in real house prices. Cross-country empirical studies have given contradictory results on the strength of the interest rate effect, but a negative effect has been found in general.

Both real and nominal mortgage rates in the EU fell considerably in the 1990s, after having increased in the 1980s.<sup>30</sup> Some of the variation in mortgage rates may have been due to changes in regulations as well as to innovation and increased competition in the financial markets. For the most part, however, the variation of both nominal and real mortgage rates closely followed that of other market rates of the same country. Taking 1995 as a reference year, the euro area countries with the highest market interest rates subsequently posted significant declines in both nominal and real mortgage rates as a result of the convergence process (Table 2.4). The latest movements in real mortgage rates of euro area countries have been dominated by changes in inflation.

In the long run, apart from disposable income, demand for dwellings depends mainly on the rate of *household formation*.<sup>31</sup> For the EU as a whole, household formation decelerated in the 1990s, but Greece, Spain, Ireland, Italy, Austria and the United Kingdom differed from the other countries in this respect. Underlying the overall deceleration in household formation was an even stronger slowdown in the growth of the younger population, which was only partly counterbalanced by the fall in the members per household.

### **Microeconomic factors**

Empirical literature on the United Kingdom and the United States has stressed the importance of microeconomic factors that may affect the *price elasticity of the supply of new housing* in explaining the differences in house price volatility and trends in the two countries.<sup>32</sup> According to this literature, the supply of new housing in the United Kingdom responds less to house prices, and this is thought to be one of the reasons why house prices in the United Kingdom both grow more over time and fluctuate more strongly than in the United States. The responsiveness of the supply of new housing depends largely on the time it takes to design and construct a building. However, it also depends on economic and policy factors, such as competition in the construction industry, the availability and cost of specialised labour, building regulations, the land planning system, and taxes and subsidies, particularly for new housing. Further, given the high irreversibility of housing investment, the responsiveness of the supply to demand shocks will depend, in the short run, on how volatile housing demand has been in the past.

Empirical evidence on the responsiveness of supply in different EU countries is unfortunately very sketchy. It tends to suggest that the supply of new housing is more responsive to house prices in Germany than in the United Kingdom, the Netherlands and some of the Nordic countries.<sup>33</sup> It is interesting to note in this respect that in the second half of the 1990s Sweden and the United Kingdom had among the highest house price inflation rates and the lowest ratios of

30 *Real mortgages are calculated as the difference in nominal rates minus the change of the private consumption deflator. Given the heterogeneity in mortgage rate definitions across countries, the rates in levels are not comparable across countries.*

31 *In some countries, e.g. Spain, demand for second residences is also becoming increasingly important.*

32 *See G. Meen, "The time-series behaviour of house prices: a transatlantic divide?", Journal of Housing Economics 11, 2002.*

33 *See J. Swank, J. Kakes and A. F. Tieman, "The housing ladder, taxation, and borrowing constraints", mimeo, De Nederlandsche Bank, 2002, and D. Kasparova and M. White, "The responsiveness of house prices to macroeconomic forces: a cross-country comparison", European Journal of Housing Policy 1(3), 2001.*

residential investment to GDP in the EU. Germany, on the other hand, had the highest residential investment-to-GDP ratio, with falling real house prices (see Table 2.4).<sup>34</sup> The alleged difference in the price elasticity of supply between the EU countries has been attributed to cross-country differences in the land planning systems, although hard evidence on this is still missing.

Another microeconomic factor that has received much attention is *the structure and institutions of credit markets*. The advent of financial liberalisation, and the liberalisation of mortgage markets in particular, has increased the sensitivity of house prices to interest rates, as credit constraints were reduced.

It is more difficult to say whether increased credit availability has also had a separate, additional effect on house prices. The last line in Table 2.4 shows the change in the mortgage debt-to-GDP ratio (in percentage points) since 1995. There does not seem to be a close relation with house price inflation. Moreover, even if there is a relation between the rise of mortgage debt and of house prices, it is rather difficult to establish the causal direction of the relationship. The rise of mortgage debt may be the effect of rising demand for housing and/or rising house prices, rather than their cause. Alternatively, any co-movement in house prices and debt may be due to a third factor such as income growth, interest rates and fiscal factors. Empirically, there have been some attempts to resolve the endogeneity problem, but generally with little success.<sup>35</sup> Section 5 examines the interrelationship between house and capital markets in more detail.

Finally, *taxes, subsidies and other public interventions* have had important effects on house prices, especially in periods of major reforms. The tax/subsidy regimes in the EU countries and their evolution are described in some detail in Section 4.

## 2.5 House price fluctuations: some policy-related issues

The above overview of data and literature leads to the following conclusions:

1. House price fluctuations are not necessarily the sign of “speculative” behaviour or false expectations in the market. They are often part of the fundamental market mechanism. However, it is often difficult to reconcile large real house price increases in successive years with the development of underlying fundamentals. Therefore, the development of bubbles in the housing market cannot be ruled out.
2. There are good reasons to believe that housing markets vary from location to location both in terms of the shocks they incur and in the way house prices respond to these shocks. This holds true of housing markets within a single country and on comparison with other countries in the EU. One important but relatively unexplored determinant of house price dynamics concerns the responsiveness of the supply of new housing to demand shocks, which will depend, among other things, on local planning systems and regulations. The faster the supply responds to house price movements, the less room there will be for house prices to overshoot or undershoot the long-term trend.
3. The apparent differences in house price volatility across EU countries have been

<sup>34</sup> In particular, the high level of construction activity in Germany in the 1990s was in response to the massive inflow of population between the end of the 1980s and the beginning of the 1990s, which could otherwise have resulted in a prolonged increase in house prices. Only in Germany, Ireland and Austria did the growth of the number of housing units accelerate in the 1990s, as compared with the 1980s.

<sup>35</sup> For a recent attempt to disentangle the demand and supply effects and to construct an indicator of consumer credit conditions, see E. Fernandez-Corugedo and J. Muellbauer, “Modelling consumer credit conditions in the U.K.”, mimeo, Bank of England, 2002.

linked in literature to differences in and reforms of the national institutions and policies, notably in the mortgage market, believed to affect the transmission of macroeconomic shocks to the housing market.<sup>36</sup>

4. Notwithstanding the importance of local and national factors, macroeconomic developments seem to have been important determinants of house price dynamics. Mortgage interest rates, in particular, have moved closely together

with other market rates in the same country and, hence, differed substantially across countries in the run-up to Stage Three of Economic and Monetary Union (EMU), but one would expect this not to be a substantial source of asymmetric behaviour across the euro area countries in the future. Given the long lags in the matching of demand for and supply of housing, however, some countries may still be adjusting to the new economic framework characterised by low and less volatile interest rates.

### 3 Rent dynamics

#### 3.1 Introduction

The market for rental accommodation is an important part of the overall housing market. Depending on the country, between 10% and 60% of the stock of dwellings in EU Member States is rented (Table 3.1).<sup>37</sup> The tax-subsidy system, the regulation of the rental sector, the provision of “social” rental accommodation and the regulation and structure of financial markets are factors potentially influencing the relative weights of rental housing and home ownership.

In most EU countries, the share of rented dwellings in the stock of housing has decreased since 1980, in some cases rather sharply so. There seem to be two main

interpretations for this fall. First, the strictness of rent controls may have reduced the supply of rental accommodation over time. Second, the demand for rental accommodation may have fallen as households considered home ownership a more attractive option because of improved access to and a lower cost of mortgage credit, because of favourable tax/subsidy policies and

<sup>36</sup> See, for example, J. Muellbauer, “Anglo-German differences in housing market dynamics”, *European Economic review* 36, 1992, and D. Maclennan, J. Muellbauer and M. Stephens, “Asymmetries in housing and financial market institutions and EMU”, Centre for Economic Policy Research, working paper 2062, 1999.

<sup>37</sup> Note that the percentage share of owner-occupied dwellings (reported in Table 1.1) and that of rented dwellings do not necessarily add up to 100% in all countries, due to dwellings classified as “other” in the relevant statistics. These include vacant dwellings in some countries.

**Table 3.1**  
**Share of rented dwellings in the total stock of housing**  
(in %)

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy
Around 1980	38	49	61	25	21	45	24	39
Around 1990	33	45	61	20	15	42	18	25
Around 2000	28	40	60	20	10	42	16	19
	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom	
Around 1980	39	58	43	39	31	42	42	
Around 1990	30	55	41	28	27	44	35	
Around 2000	26	47	41	28	32	41	32	

Source: ECB calculations; see Annex 2.

Notes: For Germany, 1980 and 1990 figures refer to West Germany. In the 1990s, the share of rented dwellings decreased by around 1.5 percentage points in West Germany and by more than 5 percentage points in eastern Germany.

because of expectations of capital gains from rising house prices.

Irrespective of whether this process has been driven by demand or supply, the result has been that the role of the rental market is now relatively marginal in some countries, in particular in Spain. Excluding dwellings under direct ownership or indirect control of the public sector (see below), the private rental market probably represents no more than about one-fourth of the housing stock in all EU countries, except Germany. EU governments have responded over the years to the fall in the size (and quality) of the market for rented dwellings and have to various degrees relaxed rent regulations. Finland is an interesting example of a country that lifted most rent controls in the 1990s and has seen the share of rental accommodation rising, but also (or despite of) high rent inflation.

The implications of the various regulatory regimes for the functioning of the whole housing market and, more generally, for questions of urban planning, income distribution and labour mobility are an issue of some debate. For the purposes of this report, the main interest is the relation between the rental sector and a well-functioning housing market in general as well as the relation between rents, consumer prices and house prices. Rents represent about 6% of the HICP basket for the both the EU and the euro area and are, therefore, of direct interest to the single monetary policy.

### **3.2 The evolution of rent controls and of social renting in EU countries**

Historically, rent controls were devised for a variety of social and economic reasons, such as to provide affordable accommodation to everyone, to avoid segregation, to redress the landlord-tenant negotiation power and to limit rent volatility.<sup>38</sup> In real terms, controlled rents often fell significantly and over long periods of time. Although hard

evidence is not available for most countries, it is likely that the significant fall of real rents has led to significant decreases in the supply of rental accommodation.

The shrinking and mis-functioning of the rental sector has been seen as potentially damaging the functioning of the whole housing market and in the last 20 years, rent control systems have been revised in all EU countries (see Table A1 in Annex I “Chronology of main policy measures”). The revised rental market regulations are more complex systems governing both permissible rent increases and a number of other aspects of landlord-tenant relations. There are three fundamental aspects in rent control systems that need to be distinguished, namely the question as to:

- (i) whether there are regulations governing how the initial rent in a multi-year rental contract will change in the future;
- (ii) whether there is some type of control on the initial rent negotiated for a new rental contract between a landlord and a tenant; and
- (iii) whether there are regulations governing contract termination (eviction).

On the first aspect, most EU countries have moved towards a system that allows some type of rent indexation to consumer price inflation and/or various freely negotiated adjustment clauses. Even when completely decontrolled, it would seem that long-term rental contracts are still based on relatively simple indexation systems, either by convention or simply in order to avoid contractual complications and possible reasons for litigation *ex post*.<sup>39</sup> Thus, the typical rental contract in most EU countries is a contract that includes explicitly or by default an indexation clause that refers to the consumer price index or some variant thereof. In Denmark and France, the

<sup>38</sup> See R. Arnott, “Time for revisionism on rent controls”, *Journal of Economic Perspectives*, Vol. 9(1), 1995, pages 99-120.

<sup>39</sup> In Finland, around 32% of rent contracts, for which information is publicly available, are indexed to increases in consumer price levels.

indexation is linked to housing costs, while it is set in collective negotiations within limits also linked to costs in Sweden. In most countries, additional adjustments of rents for sitting tenants to housing market conditions may take place at the time of the renewal of their contracts (if they have renewable fixed-term contracts), although there are provisions limiting the renegotiating power of landlords in most countries. Germany has an adjustment mechanism that allows increases in rents of sitting tenants to new rental contracts and to recently adjusted rents up to a maximum (20% in a three-year period). Such a mechanism provides an updating of rents of sitting tenants to recent housing market conditions.<sup>40</sup>

Concerning the second aspect of rent control, regulations that govern the rent negotiated in new contracts have been historically justified on the grounds that landlords may have some local monopoly power<sup>41</sup> and/or that there is a need to limit excessive temporary rent increases. In general, there is now widespread agreement among policy-makers that rents in new contracts should reflect market conditions and the passage from the first to the “second generation” of rent controls has been marked by a more or less gradual decontrol of new contracts mainly for what concerns the negotiation of the initial rent. Most countries have moved towards decontrolling rents in new contracts, but this has sometimes been limited to specific segments of the rental market, such as newly built houses (e.g. Denmark) or more expensive segments of the market. This has led to a regulatory segmentation of the rental market. Limits to the rent of new contracts with reference to rents in the vicinity still exist in some countries (e.g. the Netherlands). Sweden seems to have one of the most restrictive regimes in this respect, effectively allowing no place for individual negotiation with prospective tenants.

The process of decontrolling rents in new contracts has been closely linked to a revision of contract termination rules. In a system

where new contracts can set rents that are very different from rents paid by sitting tenants, the duration of contracts and the eviction rules become very important for both sides. Regulation of termination rules has been justified on the grounds that tenants generally face more sunk costs of moving than landlords and these reduce the tenants' power to renegotiate. While the termination rules can be negotiated *ex ante* by the parties (before tenants move into the house), complete contracts that foresee all future eventualities are difficult to write. The need to establish “security of tenure” has in fact been one of the main arguments in public policy debate. There has also been a tendency in many EU countries to allow free negotiation of the duration and contract termination rules, within some prescribed legal framework. In a number of countries, however, most contracts continue to be open-ended, and landlords can only terminate these under special circumstances.

In many countries, the most difficult policy issue has been the revision of rents and conditions of old contracts dating back to earlier phases of stricter rent control. Apart from being an issue of political debate, the very favourable conditions of these contracts give tenants very little incentive to move. In extreme cases, as in Stockholm, an elaborate system of sub-letting accommodation rented under an old contract has developed. Some countries, like Spain and Portugal, designed one-off adjustments aimed at bringing the rents of old contracts more into line with new contracts, although the revised rents of old contracts in the case of Portugal still remained a small fraction of the value of equivalent new contracts. In eastern

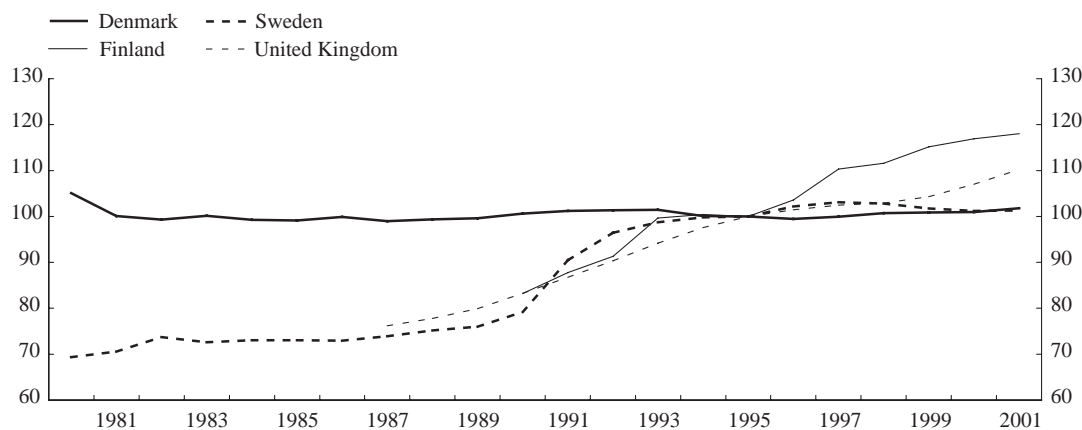
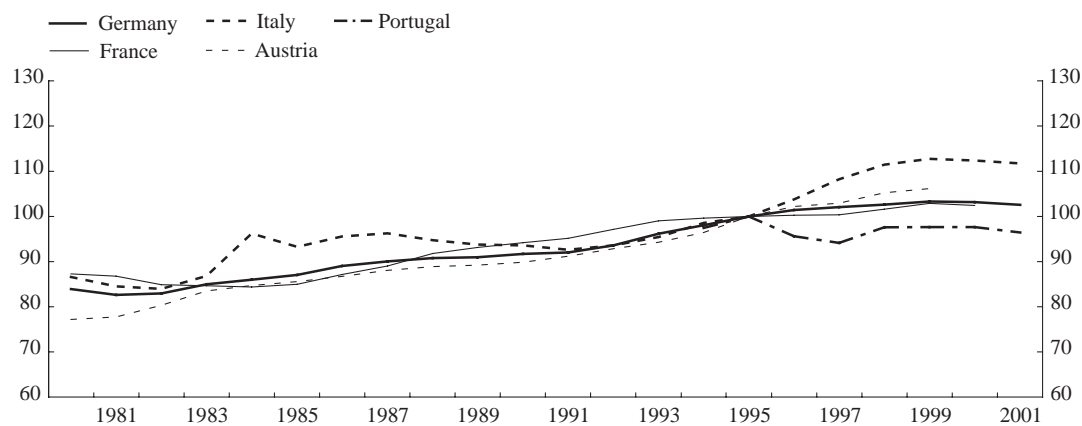
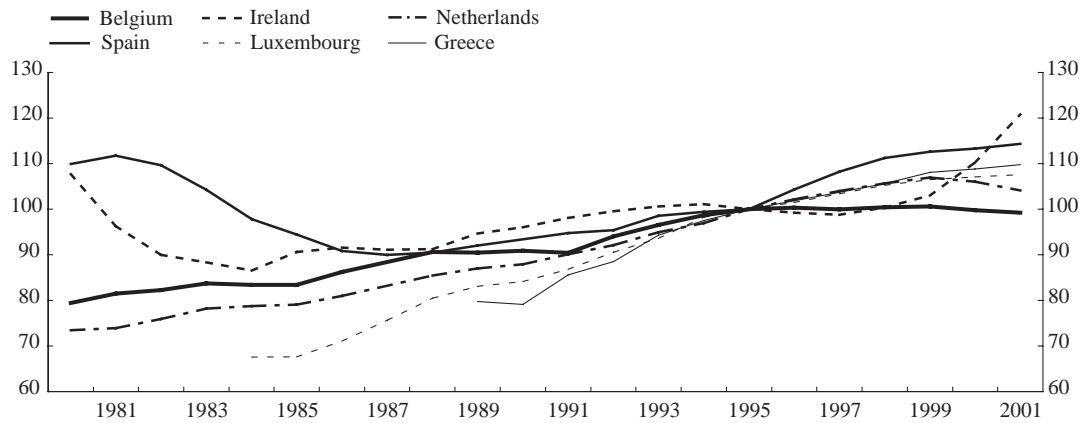
<sup>40</sup> Rent escalation clauses, indexed rents and additional rent increases for improvement are also admissible in Germany. After the abolition of post-war controls, West Germany never experienced a period of strict rent control, a fact which may help to explain the stability of the substantial share of private rental housing.

<sup>41</sup> Such local monopoly power may, for example, arise because of the combination of high product differentiation, idiosyncratic needs and high search costs on the part of the prospective tenants – see R. Arnott and M. Igarashi, “Rent control, mismatch costs and search efficiency”, *Regional Science and Urban Economics* 30, 2000.

### Chart 3.1

#### Real rents

(index 1995 = 100)



Notes: Rents are deflated with the private consumption deflator. For Germany, rents from West Germany are used.

Germany, following unification, after several discretionary adjustments that raised rents by more than 500%, the West German system of rent regulation was introduced. In general, however, a substantial part of the rental market in most countries has remained effectively segmented and rationed, while the functioning part of the market may actually have faced tight conditions and rapidly rising rents. As time progresses, dwellings with very old contracts may enter the decontrolled rental market as tenants move, die or are induced to change the contract, but the transition is likely to be slow. In Italy, for example, almost seven years after the 1992 regulatory reform of rents, only an estimated 24% of all contracts were according to the new law.

In addition, a large part of the rental accommodation in many countries is still directly owned by public authorities or by non-profit organisations that are subsidised by the state and/or employ different contracts and specific criteria in the selection of tenants. Unfortunately, figures on “social” renting are not comparable across EU countries, as the national definitions of “social” rental dwellings vary considerably.<sup>42</sup> From the information that exists, it can be said that in many countries, including Denmark, France, the Netherlands and the United Kingdom, this “public” rental accommodation represents roughly half or more of the total rental sector. Furthermore, there is not much evidence of a substantial reduction in the weight of the “public” rental sector over time, except in the United Kingdom. This kind of intervention of the public sector through the direct ownership or indirect control of the housing stock has been traditionally less widespread in the southern EU countries.

### 3.3 Rents, consumer prices and house prices

The above observations on standard rental contracts and on “public” renting in EU

countries suggest the following two points on rent inflation:

- for sitting tenants and for the tenants in the “public” rental sector, rent adjustments are unlikely in most EU countries to reflect closely the housing market conditions. In most EU countries, rent adjustment is likely to be closer to the CPI or some housing cost measure plus or minus some factor that will reflect, among other things, public housing policy objectives and fiscal policy considerations;<sup>43</sup> and
- rents on new contracts may reflect more closely the tightness in the housing market and housing market prices, although regulations may again set limits on how much rents in new contracts can deviate from those in existing contracts.

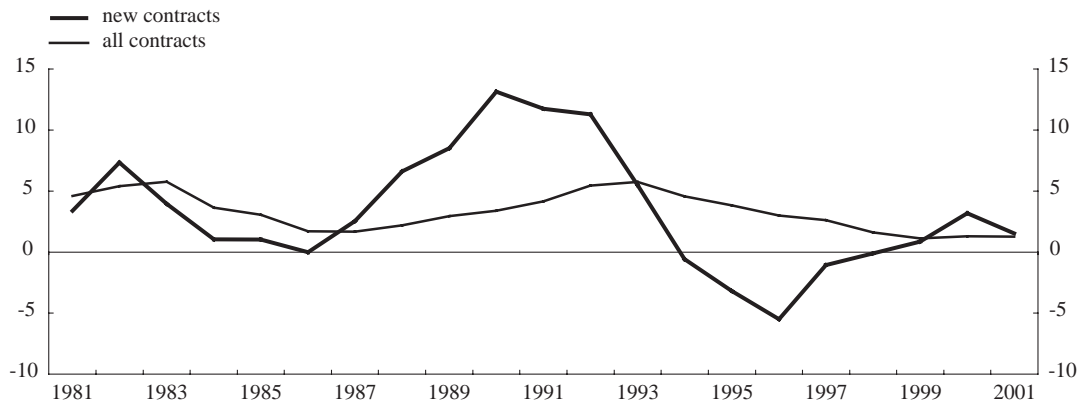
Changes of the overall rent index will reflect both the adjustment in the rents of sitting tenants and the rents of new contracts. Chart 3.1 shows real rents in the EU countries (deflated by the private consumption deflator). As in the case of house prices, these indices are not strictly comparable across countries and give a rough approximation of the evolution of real rents.<sup>44</sup> Nevertheless, there are two observations that can be made for most countries.

First, with the exception of Denmark and Portugal (for which only short series are available), real rents have increased in the long run. As was the case with real house prices, one explanation for the long-term

<sup>42</sup> Official figures in some countries include dwellings in the ownership of households or enterprises in which the tenant receives some type of rent subsidy. In addition, dwellings owned by the public sector are sometimes rented subject to the same conditions as in the private rental sector. This is the case, for example, in Sweden, where municipal authorities own a significant part of the stock of rented dwellings, but rents and conditions in these dwellings are not significantly different than in the rest of the rental sector.

<sup>43</sup> Social rents also tend to vary less than market rents across locations in the same country.

<sup>44</sup> Harmonised data on rents exist since the mid-1990s and are used below. The longer series presented here sometimes refer to a specific section of the market (e.g. flats in Luxembourg or the private sector in Ireland) and sometimes include other housing expenses (e.g. waste disposal in Germany).

**Chart 3.2****Change in nominal rents in West Germany***(in %)*

Sources: Bundesbank estimates based on data from real estate sector (Bulwien) and the Federal Statistical Office.

increase is that the cost of construction land and, thus, the cost of housing services has been increasing. Quality improvements of new dwellings may have had an impact as well, if they are not properly accounted for in rent statistics. Additionally, there may have been catch-up effects in some countries, after relaxing long standing strict rent regulations. For countries with long time series, the long-term growth in real rents was in the range of 0% to 2% and, on average, about 1 percentage point less than the average long-term growth in real house prices. In (western) Germany, strong price increases for housing-related services contributed to rent inflation at the beginning of the 1990s.

Second, the real rent series look distinctly less cyclical than house prices. Given that rents of sitting tenants generally adjust more or less in line with the CPI or follow rents in new contracts only with a (variable) lag, this is not particularly surprising. Some of the fluctuations observed can be linked to regulatory reforms. This would be the case with Spain, for example, that liberalised rents in new contracts in 1985. While real rents in Spain had fallen in the first half of the 1980s, they rose relatively strongly thereafter.<sup>45</sup>

45 Of course, housing conditions also changed over this period and the Spanish market has probably become tighter.

**Table 3.2****Rents and HICP inflation from 1997 to 2001 and the contribution of rents to HICP inflation***(annual average)*

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy
Rents	1.6	2.6	1.3	5.3	4.6	1.1	7.9	4.0
HICP	1.7	2.1	1.3	3.7	2.4	1.2	3.0	2.1
Contribution	0.09	0.22	0.13	0.22	0.08	0.08	0.16	0.11
	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	United Kingdom	
Rents	2.9	3.2	2.8	2.6	3.1	1.2	3.2	
HICP	1.9	2.6	1.4	2.7	1.9	1.5	1.3	
Contribution	0.16	0.34	0.15	0.05	0.16	0.15	0.17	

Sources: Eurostat, ECB calculations.



It should be mentioned that even what appear, on average, to be relatively small real rent increases may conceal very important distributional effects, in particular for mobile households that frequently sign new contracts. For example, a third of the overall rise in rents in France in 2001 was accounted for by rent rises for new tenants. If rents for sitting tenants adjust in line with the CPI, as is likely to have been the case in some of the EU countries, then even a 0.5% increase in real rents is entirely attributable to very large increases in new contracts. In any single year, these probably represent no more than 10% of all rental contracts, which means that rents in new contracts would rise by about 5% or more per annum in real terms.<sup>46</sup> Thus, households could have been facing very high costs of moving, even before considering any transaction and other fixed moving costs. Mobile households, who are more likely to be using rental accommodation, would be particularly penalised (see Box 2 on “Labour mobility, housing tenure and the rental sector in the EU”).

This is particularly relevant for periods in which a demand shock hits the housing market as new contracts bear the brunt of any short-term adjustment of rents to changing housing market conditions. This can be seen in Chart 3.2, for example, where the change in rents of new contracts is compared with the change in the overall index of rents in West Germany. Following the inflow of immigrants in the late 1980s and early 1990s, the annual growth of rents in new contracts accelerated fast, reaching an estimated peak of 13% in 1990, then decelerated and eventually turned negative for some years. Instead, the rise of the overall rent index reached a maximum of 5.7% three years later, in 1993. Over the full period under review, the total change in rents proves to be nearly identical for sitting tenants and in new contracts.

In recent years, rent inflation has decelerated in many EU countries, or has stayed relatively constant, as result of the fall in consumer price inflation. In general, it has remained

above the rate of overall HICP inflation. Table 3.2 below shows the average increase of the rent component in the HICP, overall HICP inflation and the average contribution of rents to HICP inflation in all EU countries in the period from 1997 to 2001. On average from 1997 to 2001, rents have contributed 0.13 percentage point to EU-wide HICP inflation per annum (0.12 percentage point to euro area HICP inflation).

Notwithstanding the relatively low rent inflation in many countries, for the average household, it may have become more economical than in the mid-1990s to buy rather than rent because of the contemporaneous fall in real interest rates.<sup>47</sup> The fall in interest rates, combined with financial market liberalisation that has reduced credit constraints, would have made it cheaper and easier for households to finance a purchase of a dwelling, in many cases offsetting the rise in house prices. Buoyant expectations about future house price increases would have further induced households to buy rather than rent. However, as transaction costs in residential property markets tend to be substantially higher than in a well-developed rental market and given the required downpayments when purchasing a house, households with higher mobility needs and/or low initial own capital would still have preferred to rent rather than buy.

<sup>46</sup> The turnover of contracts is not known, but estimates from the German Socio-Economic Panel and the Housing Surveys put this at 10% per annum. Given that Germany has one of the most active and liberalised rental markets, it is unlikely that the turnover will be higher in most of the other EU countries.

<sup>47</sup> In theory, house prices are related to rents of new contracts through what is effectively an arbitrage condition, i.e. the present discounted value of the rental contract should be equal to the present value of buying and keeping the dwelling over the same period. Ignoring transaction costs and financial constraints, this means that the average rent paid over the duration of the new contract will be approximately equal to the user cost of the housing assets. The user cost is the annual financial cost (opportunity cost of own capital plus after-tax interest on borrowed capital), minus the expected capital gains (losses) from a possible appreciation (depreciation) of the value of the house and plus the cost of maintenance, physical depreciation of the house, property and other taxes. In practice, the rent index does not capture the average rent paid on a new rental contract, but rather the average current rent of old and new contracts, which may be a very poor proxy in the short run. With strict regulation of rents and eviction rules and a large public sector, a large part of rents observed may have no relation to average going house prices. Indeed, houses with sitting tenants sell at a considerable discount.

### 3.4 Rented accommodation: some policy issues

Whatever the justification for rent regulations, policy-makers have learned in the past that the de-linking of rents from housing market conditions is not attainable in the long run without curtailing the size and hindering the functioning of the rental market. The consequences can be reduced efficiency and liquidity of the whole housing market, with implications also for labour mobility. This has led most EU countries to revise their rental market policies, allowing a wider use of short-term contracts and of rent-escalation clauses and liberalising the new rental contracts, albeit with varying strings attached. Nevertheless, important segments of the rental market in many EU countries still operate under strict control regimes.

The liberalisation of new contracts provides a mechanism of sluggish adjustment of rents to housing market conditions. But if new contracts provide the only effective rent adjustment mechanism, there can also be negative side-effects, particularly on labour mobility. It also raises the high initial housing costs of young households that are often cash-constrained and cannot buy residential

property. In practice, new tenants may be asked to pay up-front for the potential gains they will have from a long-term contract, which only adjusts to the CPI, not to changing housing market conditions. Clearly, the problem becomes more severe, the more difficult it is to sign a short-term contract, the more strict the regulations are for the indexation of existing contracts and, above all, the higher are the expected real house price increases.<sup>48</sup> Unfortunately, this last factor also means that the negative side-effects and the need for reforming the rent regulatory system are at their highest when house prices are rising and, thus, when the reform is likely to produce the largest re-distribution effects.

<sup>48</sup> One way of addressing the possible adverse effects of rent indexation on labour mobility could be to enable landlords to buy themselves out of an old rental contract by paying the tenant the capitalised value implicit in the rental contract with a below-market rent. Such payment would then need to be recognised in law as an expense for the landlord, tax-deductible from future rents, and as capital income for the tenant.

## Box 2

### Labour mobility, housing tenure and the rental sector in the EU

Decisions to change residence in order to take up a new job are likely to be influenced by housing market conditions, given that housing costs (mortgage payments or rents) are typically the largest component of households' budgets. In particular, high transaction and search costs when buying/selling and renting/letting residential property increase mobility costs and may generate inefficient lock-in effects.<sup>1</sup> Thus, stamp duties, high registration fees and inefficient regulation of rental markets can all increase geographical mobility costs.

The efficient functioning of the rental sector can be important in this respect, particularly for the more mobile households and for households that cannot raise the necessary downpayments to buy residential property, such as young and unemployed households. As transaction and search costs tend to be lower for rental housing than for owner-occupied housing, one expects the relative mobility rates to be higher among tenants than owner-occupiers. Estimates of labour mobility rates from a sample of households in the five largest countries of the EU tentatively support this hypothesis (see the table below).<sup>2</sup>

#### Labour mobility rates broken down by type of housing tenure for the period from 1995 to 1997 in several European countries

(in %)

Housing tenure	Germany	Spain	France	Italy	United Kingdom	All countries
Ownership	0.3	0.1	0.2	0.1	1.6	0.4
Private rental	4.1	3.0	2.1	1.1	3.1	2.6
Social housing	2.8	1.8	1.1	0.5	1.1	1.2
All types of tenure	2.0	0.4	0.8	0.2	1.6	0.8

Labour mobility rates are computed as the percentage of the number of residential changes associated with the acceptance of a new job over the total number of observations. The sample is drawn from the European Community Household Panel (ECHP) and is made up of heads of household with previous labour market experience aged 25 to 64.<sup>3</sup>

This tentative evidence suggests that the labour mobility rates in all countries are lower among homeowners than among tenants in private rental housing. The mobility of tenants in social housing is lower than the mobility of tenants in private rental housing, but tends to be higher than the mobility of owners. It is important to note, however, that the estimates presented here do not suggest that overall mobility across countries is closely related to the tenure structure. Overall mobility depends not only on transaction and search costs, but also on a wide range of other factors, e.g. wage structures and job entry and exit conditions.<sup>4</sup> In conclusion, the efficient functioning of the rental sector can be particularly important for the more mobile households. In general, one may conjecture that transaction costs in both the rental sector and the rest of the housing market can have negative consequences for labour mobility.

1 P. Lundborg, "Transaction Taxes in a Search Model of the Housing Market", *Journal of Urban Economics*, 45, 1999.

2 The estimates in the table are drawn from the Ph.D. dissertation "Modelling Housing Tenure and Labour Mobility in the European Union" by Cristina Barceló, Universidad Complutense de Madrid (2003, expected).

3 Housing tenure and labour mobility rates refer to the periods from 1994 to 1996 and 1995 to 1997 respectively. Due to the small sample size (between 5,000 and 10,000 households per country), the figures reported in this box may not be fully representative of the countries under review, especially with regard to small sub-populations (e.g. tenants in the United Kingdom).

4 For an overview, see P. A. Fischer, R. Martin and T. Straubhaar "Should I stay or should I go?" in T. Hammar, G. Brochmann, K. Tamas and T. Faist (eds.) "International migration, immobility and development", Berg, 1997.

## 4 Housing taxes, subsidies and transaction costs

### 4.1 Introduction

The housing markets in EU countries are characterised by a wide variety of policy interventions, in particular tax exemptions on particular types of housing-related investment or subsidies for housing-related activities. This section examines the various types of housing-related taxes and subsidies, and their evolution over time. It also gives some indication as to the amount of public spending on housing that has been brought up by Member States.

Taxes and subsidies regarding the housing market can be categorised by the following three dimensions:

- (i) taxes and subsidies that affect the housing income or opportunity costs of housing investment;
- (ii) taxes and subsidies regarding the property; and
- (iii) indirect taxes, such as VAT, and transaction taxes, including stamp and registration duties and inheritance taxes.

Moreover, three types of distortions created by the housing policy system can be identified:

- (i) distortions in decision-making between investments in housing (immovable property) and other assets (movable property);
- (ii) distortions between owner-occupied-housing and rented housing; and
- (iii) distortions between investment in new instead of existing dwellings.

### 4.2 Evolution of tax policies and subsidies in EU countries since 1990

Tax exemptions and subsidies in EU countries generally tend to favour investment in

immovable property (see Table 4.1).<sup>49</sup> This is a rather persistent feature of housing policies in EU countries, although housing policies in most EU countries underwent sometimes substantial change in the 1990s (see Table A2 in Annex I “Chronology of main policy measures”). Moreover, housing policies in many EU countries are directed explicitly at promoting home ownership, in many case especially for low-income households. Usually, owner-occupiers benefit from generous tax exemptions related to the value of their house, from subsidised loans (“0% loans”) or from tax relief related to mortgage interest payments.<sup>50</sup> Finally, some EU countries promote investment in new dwellings instead of house ownership in general, although the picture with regard to this dimension of housing market policy seems to be far more heterogeneous.

Looking at the development of housing policies in EU Member States over time, no general trend is discernible over the past decade (see Table 4.2). However, there appears to be a reversal of policies in many countries with respect to earlier periods. Indeed, many EU countries have reduced the heavy subsidies they granted to housing investment or have restricted tax exemption related to mortgage interest payments. For instance, Sweden decided at the beginning of the 1990s to reduce the incentives to invest in immovable property by equalising marginal tax rates across types of assets. Moreover, the introduction or gradual increase of real estate taxes has contributed further to reducing some of the distortions in favour of immovable property. This trend gained speed in the second half of the 1990s, in line with the general trend towards budget consolidation.

The more neutral stance with regard to investment in movable property has been

<sup>49</sup> Note that direct subsidies have not been included in Table 4.1.

<sup>50</sup> Only mortgage interest relief for housing investment has been retained in the tables.

**Table 4.1****Housing taxes in EU countries (2001)**

	Tax on imputed rent	Interest relief <sup>1)</sup>	Tax on capital gains	Real estate tax
<b>Belgium</b>	Y (30%-50% of imputed income)	Y	Y (turnover <5 years, exemption for owner-occupiers)	= Tax on imputed rent
<b>Denmark</b>	Y	Y	Y (tax exemptions for owner-occupiers)	Y
<b>Germany</b>	N	N	Y (turnover <10 years, tax exemptions for owner-occupiers)	N (land tax, 0.3-1% of rateable values)
<b>Greece</b>	Y (for pood)	Y (for pood)	N	0.025% to 0.035%; for large estates: 0.3% to 0.8%
<b>Spain</b>	N (for primary houses)	Y	Y ( tax exemptions for principal dwellings when reinvested)	0.62%
<b>France</b>	N	N	Y (no tax for main residence)	+ residence tax; 7.8%-45% of half cadastral rental value
<b>Ireland</b>	N	Y	Y (tax exemptions for principal dwellings)	N
<b>Italy</b>	Y (exception for pood)	Y (only for pood)	Y (50% tax reduction for pood) <sup>2)</sup>	0.4%-0.7% of cadastral value
<b>Luxembourg</b>	Y	Y	Y (tax exemptions for principal dwellings)	Y
<b>Netherlands</b>	Y	Y	N	0.3%
<b>Austria</b>	N	na	Y (turnover <10 years)	1%-1.5%
<b>Portugal</b>	N	Y	Y (exemptions if proceeds are reinvested in another residence within 2 years)	0.7%-1.3% of tax administration appraisal rent
<b>Finland</b>	N	Y (flat rate for pood up to a ceiling, 29%)	Y (exceptions for pood after 2 years)	0.2% of taxable value
<b>Sweden</b>	Y	Y	Y (25%)	0% to 1.5% of 75% of the market price
<b>United Kingdom</b>	N	N	Y (tax exemption for pood)	0.2%

Sources: NCB contributions.

Notes:

1) Mortgage-related.

2) Capital gains tax on housing was abolished in Italy on 1 January 2002.

Y: Yes.

N: No.

na: not available.

Pood: principal owner-occupied dwelling.

Inheritance tax	Wealth tax	Indirect taxes		Stamp duty	
		on repairs	on new homes		
Y; same as for financial assets	N	21% (6% house >5 years and pood)	21%	10%-12.5% registration fee (lower rates 5%-6% for modest houses)	<b>Belgium</b>
Y (same as for financial assets)	N	25%	25%	Stamp duty 1.5% - total trading costs 7.2%	<b>Denmark</b>
Lower than for financial assets	N	16%	16%	3.5%	<b>Germany</b>
0%-65% (progressive)	N	18%	0%	11%-13%	<b>Greece</b>
7.65%-34% (progressive)	0.2%-2.5%	15%	7%	na	<b>Spain</b>
5%-40% (progressive)	0.5%-1.5%	5.5%	19.6%	2%-3%	<b>France</b>
Y (same as for financial assets)	N	12.5%	12.5%	0%-9%	<b>Ireland</b>
N (abolished in 2001)	N	10% for pood; 19% for others	4% for pood; 19% for others	3% + €258 (pood); 7%, + 2%, + 1% for others	<b>Italy</b>
Y (same as for financial assets)	0.5%	3%	3%	7%-10% (lower rates for first time buyers, low income and owner-occupiers)	<b>Luxembourg</b>
5%-27% (on amount above tax free threshold)	1.2%	19%	19%	6%	<b>Netherlands</b>
Y	N	10%-20%	10%-20%	6%	<b>Austria</b>
4%-25%	N	5%; 17%	0%; municipal transfer tax: 0%-10% (progressive)	0.8%	<b>Portugal</b>
Y	Progressive in wealth, 0% for most households	22%	22%	4% of purchase values (first-time buyers exempted)	<b>Finland</b>
Y	1.5%	25%	25%	1.5%-3%	<b>Sweden</b>
Y (same as for financial assets)	N	17.5%	0%	1%, 2%, 4% depending on house value	<b>United Kingdom</b>

accompanied by a number of governments introducing further biases in favour of owner-occupation. In particular, further tax exemptions, interest deductibility and state guarantees for private housing loans have been restricted to owner-occupied housing. At the same time, some of these measures favouring owner-occupation became more targeted towards – mainly – low-income households. The Netherlands, for instance, introduced targeted subsidies that are explicitly designated for low-income, first-time buyers.

While, on average, still favouring new over existing housing, a tendency towards a more neutral stance between new and existing housing is visible in a few countries – including Belgium and France. This, however, is not a general trend as other countries – such as Austria – have continued their policy in favour of new construction.

Finally, while transaction taxes have undergone considerable reduction over the

last two decades in some countries – such as Ireland during the 1990s – the overall picture remains ambiguous. In particular towards the end of the 1990s, countries like Germany and Austria have increased their transaction and registration fees or lengthened the period applicable to capital gains tax. Other countries like Ireland have opted for a differentiated approach, reducing stamp duties for first-time buyers and owner-occupiers only.

### 4.3 Evolution of public expenditure on housing policies and social housing policies

The figures on public expenditure on housing policies<sup>51</sup> reported in Table 4.3 do not allow cross-country comparisons, given the different methodological approaches used in

<sup>51</sup> In principle, data on public support of social housing are available, but only for a limited number of countries. Moreover, data are generally not comparable.

**Table 4.2**  
**Evolution of housing policies**  
(1990-2000)

	Towards investment in housing <sup>1)</sup>	Towards owner-occupation <sup>2)</sup>	Towards new housing <sup>3)</sup>	Transaction taxes
Belgium	+	+	-	+
Denmark	-	+	+	+
Germany	-	=	+	+
Greece	=	+	=	=
Spain	-	+	=	=
France	+	+	-	-
Ireland	0	+	0	+ <sup>4)</sup>
Italy	-	+	-	+
Luxembourg	+	+	=	-
Netherlands	-	0	-	=
Austria	-	na	na	+
Portugal	+	+	0	0
Finland	-	=	=	-
Sweden	-	-	0	0
United Kingdom	-	-	na	+

Sources: NCB contributions.

Notes: The columns represent an increase (+) or decrease (-) of policy-induced distortions in favour of a particular asset in the period from 1990 to 2000; the equal sign (=) indicates an absence of significant changes; a zero (0) indicates no net changes.

1) Distortions in favour of investment in (any kind of) housing assets over investment in other, movable assets.

2) Distortions in favour of investment in owner-occupied housing over investment in rental housing.

3) Distortions in favour of investment in new housing over investment in existing housing.

4) As from 1998, Ireland introduced several two-tier stamp duty systems, favouring transactions for owner-occupation, but raising transaction taxes for investors in an attempt to slow down speculative housing investment.

**Table 4.3****Public expenditure on housing policies***(% of GDP)*

	1980	1990	2000
Belgium	na	0.8	1.0 <sup>3)</sup>
Denmark	1.3	1.3	1.4
Germany	0.9	0.6	0.9
Greece	0.2	0.2	0.2
Spain	1.3 <sup>1)</sup>	2.3	1.4 <sup>4)</sup>
France	na	1.1	1.1 <sup>4)</sup>
Ireland	na	na	na
Italy	0.3	0.14	0.1 <sup>5)</sup>
Luxembourg	na	0.8 <sup>2)</sup>	0.6
Netherlands	na	0.9	0.7 <sup>4)</sup>
Austria	1.4	1.3	1.3 <sup>4)</sup>
Portugal	na	0.3	0.8
Finland	1.4	1.6	1.2
Sweden	1.0	1.5	0.4
United Kingdom	na	na	0.6

Source: NCB contributions.

Notes: The figures for Belgium cover solely the various tax deductions granted by central authorities. The figures for Germany include revenue foregone and public housing allowances. The figures for Portugal refer to revenue foregone due to tax exemptions and interest relieves as well as to support for public housing. The figures for Sweden include rent and interest allowances.

1) 1981.

2) 1992.

3) 1997.

4) 1999.

5) 1998.

Member States. Usually, these numbers comprise tax and interest rate deductions for private investment, but may also include support for public housing (see the corresponding notes in the table). Only few countries include revenue foregone (Germany, Portugal). This introduces a considerable downward bias in the numbers. Some countries – such as Belgium – report only figures for the federal level. Other countries – such as Sweden – report figures that comprise expenditure for both the rental and the property sector, while others concentrate on public spending for owner-occupied housing only.

These data limitations may also hinder the comparison of country-specific developments over time. Nevertheless, available figures seem to indicate that public expenditure as a percentage of GDP has remained stable over the past two decades in most EU countries. The recent decrease of public housing expenditure in some Member States appears

to reflect a change of the policy stance towards more targeted spending.

#### 4.4 The micro-management of housing markets

There have been various attempts to micro-manage the housing market through changes in taxes and subsidies. An overall evaluation of these is difficult, given that they have been implemented in different circumstances and with different objectives. Nevertheless, it would seem that, at times, housing market fluctuations might themselves have been the result of policies attempting to micro-manage the housing market, which often proved to be pro-cyclical.

One example is Sweden at the turn of the 1990s. At the end of the 1980s, overly generous tax subsidies and interest allowances led to a boom in the Swedish housing sector, with rapidly increasing house



prices and the creation of excess capacity in some regions. Following a substantial tax reform in 1991 and further cuts in interest subsidies in 1993, the cycle turned around, with house prices plummeting to their mid-1980 values.

Another example of policies aimed at a micro-management of the housing market is provided by Ireland. The government intervened in the residential housing market in response to rising property prices during the late 1990s and in 2000. A number of adjustments to the stamp duty system were made, favouring transactions for first-time buyers and, to a lesser extent, owner-occupiers, but raising transaction taxes, and implementing an anti-speculative property tax for investors. These measures led to a slowdown in house prices as investors exited the market, but – at the same time – private rents accelerated. However, in 2002, many of these measures implemented to discourage investors were reversed, mainly in response to a shortage in the availability of rental accommodation. Consequently, as investors returned to the market, house prices again began to increase, but private rents began to fall moderately.

Often public interventions in the housing market raise the risk of reducing economic efficiency by making transactions more expensive and reducing labour mobility. In recent discussions, this occasionally compares

with a potential benefit coming from the prevention or slowdown of bubbles in house prices. Housing policies that increase transaction costs are sometimes claimed to reduce speculative behaviour in the housing market, while still trying to keep incentives for long-term and owner-occupied housing investment. However, recent research suggests that transaction costs may only have a minor impact in preventing asset price bubbles,<sup>52</sup> but that they impact negatively on labour mobility.

#### **4.5 Housing taxes and subsidies: policy-related issues**

In view of the potential importance of the rental sector for labour mobility and for the efficient overall functioning of the housing market, the bias of tax relief and subsidies in favour of owner-occupation should be re-considered, particularly in countries where the share of the rental sector has fallen to very low levels. A reduction of policy-induced transaction costs for owner-occupied housing would also foster labour market adjustment.

Moreover, given the long horizon of housing decisions, a predictable tax-subsidy system is called for in order to prevent the micro-management of housing related taxes and subsidies from being an independent source of shocks.

## **5 Mortgage markets**

### **5.1 The interrelationship between mortgage and housing markets**

Most transactions in the housing market involve a corresponding transaction in the mortgage market. Economic literature has highlighted how the interplay between these two markets can amplify the effects of shocks on house prices, strengthen the transmission of mortgage interest rate changes to economic activity and, in extreme circumstances, threaten the financial position

of households (with possible consequences for the financial system).

For example, an initial drop in mortgage rates can give rise to higher house prices and wealth. The increased collateral value of their assets may give households access to more loans and at better terms (through the so-called “credit channel”). This, in turn, may

52 See H. Hau, “Estimating the volatility effect of a Tobin tax”, *Fondation Banque de France*, 2001.

feed back into more demand for housing and a second round of higher house prices. While household debt is rising in this process, the market value of the housing assets is also rising, and there is no apparent disequilibrium in household portfolios. Indeed, loan-to-value (LTV) or gearing ratios may be falling all along this process, while households may be using the extra liquidity to spend on consumption goods or to invest in financial assets. After debt has risen, an increase in mortgage rates will have a twofold effect on household finances. It will raise the servicing of the accumulated debt and it will negatively affect the market value of the households' housing assets and, hence, the household's net worth. In the case of highly indebted households with few assets other than their house, a rise in interest rates may well have a combined negative income and wealth effect.

There are some well-documented cases where the credit channel has been instrumental in triggering a boom-bust cycle in the housing market (e.g. Nordic countries after financial market liberalisation). In general, however, it is difficult to say how important the effects of the credit channel are. House prices and mortgage liabilities may be rising together because of other reasons, for example because of improved expectations of future growth. Furthermore, the risks to the financial position of households can only be judged by looking at all assets and liabilities in their portfolio in relation to the possible shocks the households may face in the future. Thus, the risks to the financial position of households from an increase in interest rates may be much reduced. Being a net creditor, the household sector will typically benefit in net terms from a raise in interest rates, although some highly indebted households may face severe problems.

Even with these caveats in mind, developments in mortgage-backed liabilities are worth examining, first, because the mortgage and housing markets are so intricately linked and, second, because the high safety of these liabilities and their

favourable fiscal treatment make them the dominant source of external financing for households in most countries. From a monetary policy point of view, the level of mortgage indebtedness and the contractual characteristics of the accumulated stock of debt are also of interest because of their effects on the transmission of monetary policy to economic activity. From a financial stability point of view, high debt levels do not necessarily mean high risks for financial stability, but they do render some households more vulnerable to variations of credit conditions, especially if these are accompanied by income shocks and/or house price fluctuations.

In the rest of this section, the characteristics of existing mortgage contracts and developments in mortgage indebtedness are considered first. In the last sub-section, developments in "house equity withdrawal" (the difference between mortgage borrowing and residential investment) are considered. House equity withdrawal is an important indicator of whether households are tapping their housing wealth to finance current consumption or the purchase of financial assets. Therefore, it is potentially an interesting indicator when evaluating the housing wealth effects on consumption.

## **5.2 Characteristics of mortgage contracts**

Starting in the early 1980s or, in the case of a few countries, even earlier, the financial system was deregulated with different speeds throughout the EU (see Table A3 in Annex I on the "Chronology of main policy measures"). The measures taken included the abolition of interest rate ceilings, the relaxation both of quantitative credit controls and of contractual restrictions and the removal of strict barriers to entry into the mortgage market. In addition, public mortgage institutions scaled back their activities and measures were taken to facilitate the securitisation of mortgage loans.

These changes increased the integration of the housing credit market with the rest of the financial system and created conditions for a rapid expansion of the range of mortgage products available. They also raised competition in the mortgage market and are believed to have reduced quantitative rationing. It is more difficult to say what the effects of these changes have been on mortgage interest rates. In some countries, spreads of mortgage interest rates vis-à-vis other market rates initially increased in the early 1980s, as mortgage rate ceilings were removed and the mortgage market became more closely integrated with the rest of the financial system. In the second half of the 1990s, spreads tended to decline, particularly in those countries that achieved large reductions in inflation in the process of convergence prior to EMU.

Despite the integration process, housing credit systems have continued to be characterised by different types of mortgage contracts, partly reflecting regulatory differences and partly contracts and conventions established in earlier periods when inflation rates and interest rate variability were very different across countries (see Table 5.1 at the end of this section). The contractual features of the existing stock of mortgage debt affect the speed with which a fluctuation of mortgage interest rates will be passed on to households' disposable income. At any moment in time, the effect of a change in the mortgage interest rate on disposable income will depend on the share of contracts for which the interest rate is fixed (as well as on the time to maturity of these contracts). Table 5.1 suggests that there are large differences on how widely variable or fixed interest rate contracts are used in each country. It should be said, however, that the choice of variable versus fixed interest rate contracts may change over time and can be dependent on current and expected future mortgage interest rates.<sup>53</sup>

Other contractual differences may also play a role. For example, early repayment fees will

determine how far households will be willing and able to refinance their mortgage debt in the case of an interest rate fall. Legal and regulatory restrictions on repayment fees differ across countries and one can only presume that contractual agreements on repayment fees differ as well.

The mortgage market liberalisation process has greatly increased the type of mortgage products available in the market and has made the "typical" contract almost impossible to define. The available information indicates that, rather than converging towards a certain type of contract, the mortgage loan markets are characterised by an increased variation in the contracts used. This implies that the effects of interest rate changes may vary not only across countries, but also across households in the same country.

### 5.3 Mortgage debt

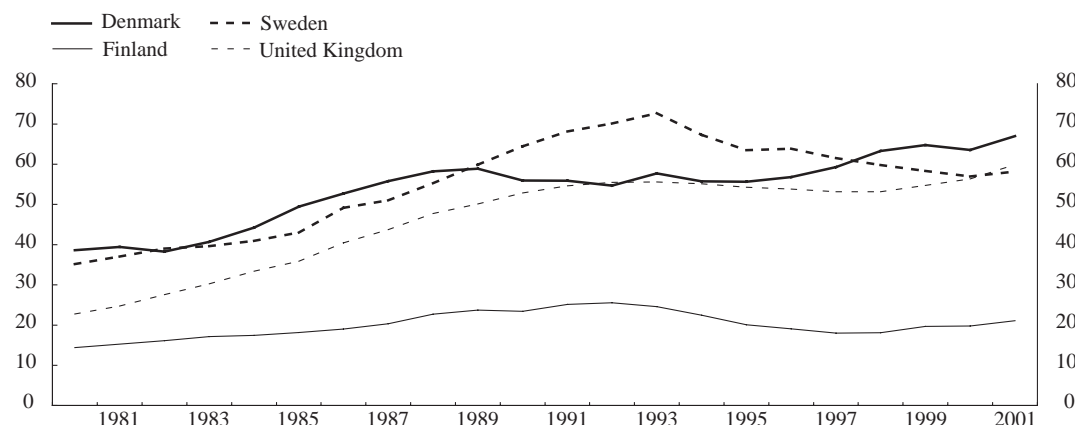
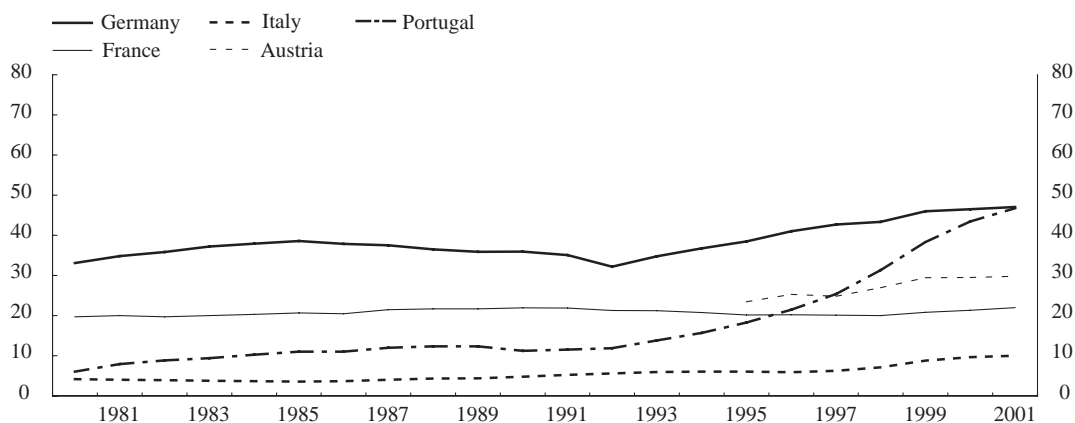
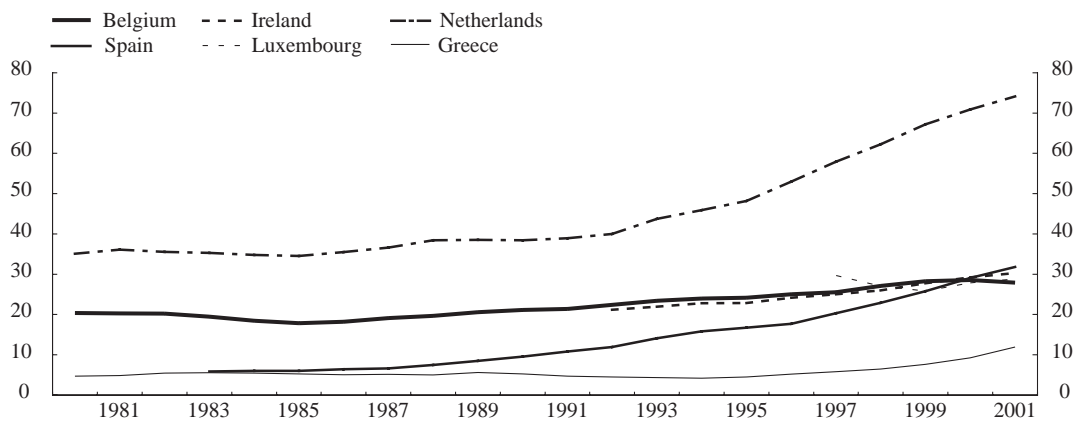
Over the past two decades, most EU countries have experienced significant changes in the *household mortgage debt-to-GDP ratio* (or, equivalently, the mortgage debt-to-disposable income ratio). The pattern over the whole period has differed between countries. In Finland, Sweden and the United Kingdom, the mortgage debt-to-GDP ratio already increased fast in the 1980s, possibly as a result of the early effects of financial deregulation, while the debt-to-GDP ratio rose faster in most other countries in the 1990s (see Chart 5.1). In the Netherlands and Portugal, the debt-to-GDP ratio rose by about 35 percentage points in less than seven years. Germany and Spain also experienced a rapid accumulation of debt in the 1990s. The mortgage debt-to-GDP ratio in 2001 is

<sup>53</sup> Note that for the purposes of "new business", i.e. lending with new contracts, some of these contractual differences may be of less relevance. The use of fixed interest rate contracts does not shield new borrowers from changes in the mortgage rate (though expectations about the future path of interest rates become far more important). All other things being equal, the effect of a change in mortgage interest rates on demand for houses is thus likely to be just as strong in a system using fixed or variable rates.

**Chart 5.1**

**Ratio of nominal mortgage debt to GDP**

(in %)



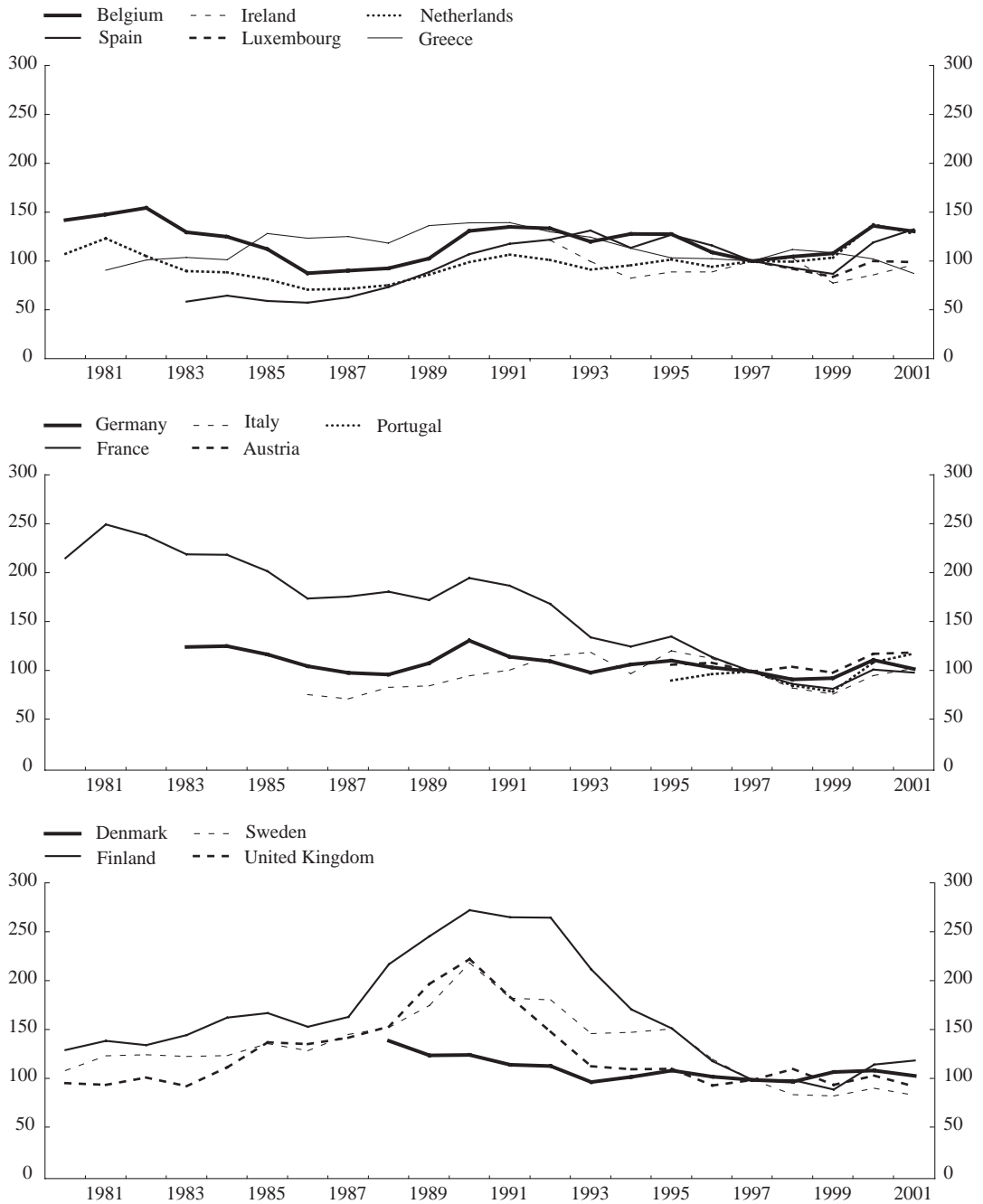
Source: See Annex 2.

Notes: Until 1991, data for Germany refers to West Germany.

**Chart 5.2**

**Estimated ratio of mortgage debt servicing to disposable income**

(index 1997 = 100)



Source: See Annex 2.

Notes: For Greece and Luxembourg, nominal GDP is used instead of disposable income. Until 1991, data for Germany refers to West Germany.

estimated to have been highest in Denmark, the Netherlands, Sweden and the United Kingdom, and lowest in Greece and Italy (see Table 5.1).<sup>54</sup>

The fragmented evidence available suggests that LTV ratios have also risen in most countries in recent years, possibly as a result of the greater availability of mortgage products that permit households to better match their income and their debt servicing and, thereby, to be subject to fewer credit constraints. Changes in the lending criteria are also likely to have had an impact, for example, the change that permitted households in Netherlands to borrow against a second income or to borrow without permanent employment. On the basis of the available information, however, there would not seem to have been a generalised easing of credit standards to which the rising indebtedness of households can be attributed.<sup>55</sup> Concerning LTV ratios, most EU countries have in place some mechanism that makes it costly for both the borrower and the lender to agree on LTV ratios above 75% to 80%. Beyond this threshold, capital adequacy ratios are higher, the use of mortgage-backed bonds is restricted and the borrower may be requested to post extra guaranties.

As suggested above, rising housing prices may have contributed to the accumulation of mortgage debt by raising the collateral value of the household's assets. This hypothesis finds support in empirical literature.<sup>56</sup> Housing prices, however, are probably not the most significant reason why mortgage debt increased rapidly in various EU countries in the 1990s. High residential capital accumulation, improving income expectations, falling mortgage interest rates and a very favourable fiscal treatment of mortgage debt are all reasons likely to have contributed to mortgage debt accumulation. A rough estimate of debt servicing (based on the product of current mortgage interest rates and the stock of debt) suggests that, compared with disposable income, households in most EU countries did not face

significant difficulties in servicing their higher mortgage debt in the second half of the 1990s (see Chart 5.2).<sup>57</sup> Falling nominal mortgage rates and rising income largely offset the effects of rising mortgage debt. Only since about 1999 is the debt servicing-to-income ratio estimated to have risen in some countries, such as Spain, Ireland, Portugal and the Netherlands.

#### 5.4 Mortgage borrowing as a source of extra liquidity

The effect of an increase in housing wealth on final consumption, following a rise in housing prices, depends at least in part on the ability of households to realise the capital gains, i.e. to turn wealth gains into extra liquidity that can be spent on goods (or invested in financial assets). Given that the great majority of transactions in the second-hand housing market are between households, the consolidated household sector cannot in general realise its capital gains by selling its housing assets. Most transactions in the second-hand market and the ensuing transfer of money net out. Instead, the liquidity of the household sector can increase if it can borrow more against the increased value of its housing assets. There are two main ways of this taking place:

1. without making any transaction in the housing market, each household can ask a

<sup>54</sup> The ratios of housing loans to GDP reported here are not strictly comparable across countries. Depending on the country, housing loans may refer to loans to finance house purchases and repairs or, alternatively, to loans secured by housing assets. The coverage may also vary. In some countries, housing loans in Chart 5.1 and Table 5.1 refer only to loans granted by monetary financial institutions (MFIs), while loans granted by all types of lenders are included in other countries. For a more detailed picture of housing loans from MFIs and other financial intermediaries (OFIs) in the euro area countries, see "Report on financial structures", European Central Bank, 2002.

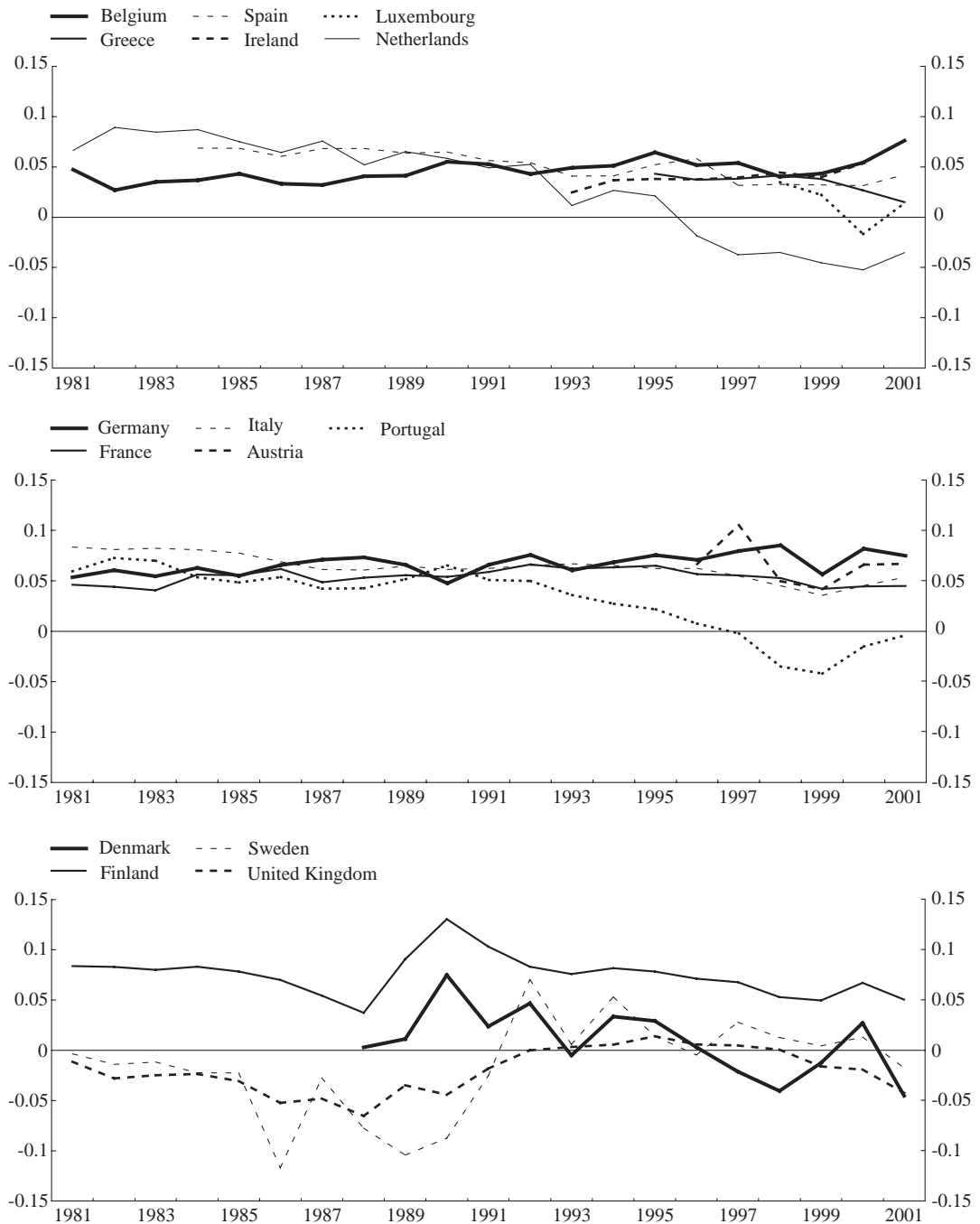
<sup>55</sup> See ECB "Report on asset price and banking stability", 2000.

<sup>56</sup> See B. Hofmann, "The determinants of private sector credit in industrialised countries: do property prices matter?", Bank for International Settlements, working paper 108, 2001.

<sup>57</sup> This is only a rough estimate of the debt servicing-to-income ratio, particularly as it applies the mortgage interest rate of new contracts to the whole stock of mortgage debt. For countries with predominantly fixed interest mortgage contracts, this is likely to under-estimate the true debt servicing-to-income ratio in periods of falling nominal rates, and to over-estimate it in periods of rising nominal rates.

**Chart 5.3**

**Investment in housing financed by households' own capital over disposable income**



Source: ECB estimations; for original data sources see Annex 2.

Notes: For Greece and Luxembourg, the nominal GDP is used instead of the disposable income. Until 1991, data for Germany refers to West Germany. For Portugal, estimates of the Banco de Portugal are used.

mortgage lender for a higher mortgage loan or can re-finance and in the process increase its debt once its housing wealth has increased;

2. when households transact with each other in the second-hand housing market, they can reduce their own contribution and borrow more from the credit system when house prices have risen, because the collateral value of their assets has risen. The liquidity of the household sector will thus increase as a result of the higher house prices.<sup>58</sup>

Literature refers to both effects as “house equity withdrawal”, although the underlying mechanisms are rather different.<sup>59</sup> The first channel is akin to an open credit line with the mortgage system. Households can increase (or decrease) their mortgage borrowing relatively fast after a change in house prices without any transaction costs in the housing market (though they may still have transaction costs in the mortgage market). In many EU countries, such direct borrowing against the increased housing wealth is not common, except in particular circumstances (see Table 5.1). Deregulation and increased competition in the mortgage markets seem to have opened up more possibilities for households to directly tap their housing wealth. In the United Kingdom, where disaggregated estimates of house equity withdrawal exist, the importance of this direct channel is found to have increased in the past decade.<sup>60</sup>

The second channel is not necessarily linked to the institutional setting of the mortgage market. For example, house equity withdrawal can arise every time the ownership of a dwelling passes from a household with small outstanding mortgage debt, for example a last-time seller with little debt, to a household that borrows much to buy the dwelling, for example a first-time buyer with little own capital. Factors such as the volume of transactions, demographics and the distribution of wealth and liabilities between older and younger households may play a role.

Whatever the mechanism, if the credit channel is in operation, one expects to see that households will be using more external (mortgage) capital and relatively less of their own capital for housing expenditure whenever house prices rise.

Chart 5.3 shows an estimate of what the consolidated household sector spends of its own capital for housing investment as a ratio of disposable income. The estimate is calculated as the difference between residential investment (what is spent on housing after netting out all transactions between households in the second-hand market) and the change in nominal mortgage debt (what is received from the mortgage system). This estimate is gross of taxes, subsidies and transaction costs.<sup>61</sup> A positive number suggests that, gross of taxes and subsidies, the household sector was contributing some of its own capital to finance

58 An example may better illustrate this point. Consider two households, each owning a house that costs €100,000 and has an outstanding mortgage loan of €80,000 (LTV of 80%). After a fall in mortgage rates, the price of the houses rises to €120,000 and the two households decide to buy each other's homes. Each household arranges with its respective bank to have a new, bigger mortgage loan of €90,000 in view of the more expensive house, pledging to put €30,000 of its own money (new LTV 75%). Each then receives €90,000 from the bank, sells its home for €120,000, extinguishes its old mortgage (for €80,000), pays for the new house (€120,000) and is each left with €10,000 extra to spend or invest in another asset. With this double transaction, LTVs of both fell and, at the same time, both households withdrew housing equity of €10,000. Note moreover that the initial interest rate fall will also have reduced the original debt servicing-to-income ratio, giving more grounds for the bank to grant the new loan despite the increase in the debt-income ratio.

59 There are additional ways of house equity withdrawal taking place. For example, households may sell housing assets and land to other sectors of the economy at home or abroad, e.g. to the government (against extra tax liabilities that may be deferred to the future).

60 See M. Davey, “Mortgage equity withdrawal and consumption”, *Quarterly Bulletin*, Spring 2001, Bank of England.

61 This is only an approximation of the own capital of the household sector. Residential investment also includes public investment and residential investment by sectors other than the household sector. Furthermore, this estimate is based on the assumption that there are no significant transactions of dwellings and land between the household sector and other sectors of the economy (e.g., purchases and sales of land and dwellings from the government) and that new houses are primarily bought by the household sector. Transactions with other sectors may be important and the value of these transactions may vary systematically with land and house prices. Nevertheless, it is interesting to note that for the United Kingdom, the house equity withdrawal over the disposable income estimated with our data is highly correlated with the equivalent series of the Bank of England (the correlation coefficient for the annual data is 0.97).



housing investment expenditure. A negative number means that the household sector has received more from the mortgage system that year than it invested in housing stock.

For most EU countries most of the time, the household sector is estimated to have “injected” housing equity gross of housing taxes and subsidies. Moreover, there has been relatively little variation in the ratio of own housing capital to disposable income over time. This does not, however, seem to have been the case for Sweden in the late 1980s, the United Kingdom and, recently, Denmark, the Netherlands and Portugal. In all five countries, it is estimated that, in certain periods, there has been significant house equity withdrawal. In Denmark, the Netherlands, Sweden and the United Kingdom, house equity withdrawal has generally coincided with significant upturns in housing prices, as would be expected if the “credit” channel was in operation. All four countries have high accumulated debt levels and in all four the mortgage system offers instruments that permit households to tap their housing wealth directly (see Table 5.1).

It is interesting to note that Portugal is an exception in this respect. House equity withdrawal is estimated to have taken place in Portugal in a period when house prices were not particularly booming and despite the fact that direct equity withdrawal (as described above) is not common. The strong rise in mortgage debt reflected the rise of overall indebtedness of households in this country, presumably for reasons that had to do with income growth expectations and interest rates and not with house prices. Starting from low mortgage indebtedness (close to 11% of GDP in 1990), households in Portugal are likely to have found mortgage loans a cheap source of financing.

The house equity “withdrawn” is estimated here to have been a substantial source of extra liquidity for the household sector. For example, the estimated house equity withdrawal in the United Kingdom in 2001 was around 4% of disposable income.<sup>62</sup> It is

interesting to note, however, that, with the exception of the Netherlands, all of the above countries do not have exceptionally high LTV ratios. Indeed, the operation of the “credit” channel means that the rising market value of housing assets can permit households to borrow more without necessarily raising the LTV ratios or their leverage.

### **5.5 The housing credit system: some policy-related issues**

This section focused on questions that are more narrowly related to the interplay between the housing market and the mortgage market. Clearly, this is just a subset of the more general question on what determines the level of (mortgage) indebtedness and how “sustainable” the present levels are likely to be. Three points emerge from this section on the housing credit system:

1. in general, the effect of housing price fluctuations may be potentially important, but is probably not the determining factor for the evolution of mortgage indebtedness;
2. having said that, for some countries, such as Denmark, the Netherlands and the United Kingdom, there is some evidence that the interplay of mortgage and housing market developments in recent years may have mutually reinforced the upward movement of both housing prices and mortgage debt. Instead, in Portugal, the rise of mortgage indebtedness may have been more a reflection of macroeconomic developments and changes in the financial system as a whole;
3. when coincident credit and asset price expansions are set in motion, controls over LTV ratios may do relatively little to curb households’ increasing demand for

<sup>62</sup> The Bank of England estimate net of taxes and subsidies for the same year is 3.5%.

mortgages precisely because the value of the collateral is increasing concurrently.<sup>63</sup> There is thus an increased need to monitor the evolution of households' indebtedness

and financial fragility and to strengthen the role of risk assessment procedures.

<sup>63</sup> See C. Collyns and A. Senhadji, "Lending booms, real estate bubbles and the Asian crisis", IMF working paper, January 2002.

**Table 5.1****Overview of current mortgage systems in the EU countries**

Country	Housing loans to households (% of GDP) <sup>1)</sup>	Interest rate adjustment <sup>2)</sup> (% of all new mortgage loans)	Usual length of contracts (new mortgage loans)	Legal or regulatory restrictions on interest rate adjustment	Restrictions on early repayment fees	Estimated average loan-to-value (LTV) ratio (new mortgage loans)	Legal and regulatory limitations on the LTV	Capital adequacy requirement	House equity release products available and/or permissible
<b>Belgium</b>	28	F (75%) M (19%) V (6%)	20 years	Variability cannot be less than a year	Maximum three months' interest on remaining amount.	80-85%	No	4% equity	No
<b>Denmark</b>	67	F (75%) M (10%) V (15%)	30 years	None	None	80%	80%	4% equity	Yes (since 1993)
<b>Germany</b>	47	Mainly M and F	Up to 30 years	None	Lender can ask compensation payments for foregone earnings within the first ten years of contract but not after.	≈70%	60% LTV for loans backed by mortgage bonds	4% equity if LTV no more than 100%	Mortgage backed loans may be used for consumption purposes or may be invested in private business, as is often the case with SMEs.
<b>Greece</b>	12	F (5%) M (15%) V (80%)	15-20 years	None	No restrictions. Usually the fee is 2.5% of the remaining loan.	70-80%	None	4% equity	Yes, but of very limited use.
<b>Spain</b>	32	V (more than 75%)	15-25 years	None	Maximum 1% and 2.5% cancellation commission for variable and fixed rate mortgage.	≈80%	80% LTV for loans backed by mortgage bonds.	4% equity if LTV no more than 80% (same threshold for lower provisioning for non performing loans)	Yes, but unusual
<b>France</b>	22	F/M/Other (86%) V (14%) <sup>3)</sup>	Over 5 years (for 97% of all outstanding loan contracts in December 2001)	None	Fees limited to six months' interest (at average loan rate) and to 3% of capital still to be repaid.		As a general rule, 60% for the loan to be eligible to the mortgage market	4% equity	Not used
<b>Ireland</b>	30	V (70%) The rest mainly M				60-70%	None	4% equity if LTV no more than 100%	Yes But so far limited to certain uses
<b>Italy</b>	10	F (28%)	10 to 25 years	None	No	n.a.	80% (or 100% if other guarantees are supplied)	4% equity	Not used

Sources: NCB questionnaires.

1) Housing loan-to-GDP ratios are not strictly comparable across countries. See footnote 54.

2) Fixed (F): interest rate fixed for more than five years or until final maturity; Mixed (M): interest rate fixed for more than one year and up to five years; Variable (V): after one year, interest rate renegotiable or tied to market rates or adjustable at the discretion of lender (O): other.

3) V: interest rate tied to market rates only (other renegotiable interest rates not included). Flows of new mortgage loans granted by resident credit institutions in 2001.

4) Of existing stock of loans.

5) Information refers to the private sector.

6) Refers to the period up to 2001. With the abolition of legal restrictions on the maximum length, the usual length may have now increased.

**Table 5.1 cont'd**

Country	Housing loans to households (% of GDP) <sup>1)</sup>	Interest rate adjustment <sup>2)</sup> (% of all new mortgage loans)	Usual length of contracts (new mortgage loans)	Legal or regulatory restrictions on interest rate adjustment	Restrictions on early repayment fees	Estimated average loan-to-value (LTV) ratio (new mortgage loans)	Legal and regulatory limitations on the LTV	Capital adequacy requirement	House equity release products available and/or permissible
<b>Luxembourg</b>	29	V (90%)	20 to 25 years	None	None	80% as a maximum, except in special cases	None	4% equity if LTV no more than 100%	Not used
<b>Netherlands</b>	74	F (74%) <sup>4)</sup> M (19%) <sup>4)</sup> V (7%) <sup>4)</sup>	10 years	None	None	112%	None	0% equity for government guaranteed loans (these require 30-35% debt service to income ratio) Otherwise 4% equity if loan up to 75% of real estate's liquidation value	Yes
<b>Austria</b>	30			Interest rate cap of 6% for loans by building and loan associations		60%	80% or 100% if unsecured		
<b>Portugal</b>	47	Mainly V	25-30 years <sup>6)</sup>	None	Cannot exceed 1% of the corresponding amount to be amortised in the subsidised regimes. (The subsidised regime ended in September 2002. The restriction applies to contracts signed until September 2002 under the subsidised regime).	70-80%	No (for the subsidised regime, ended in September 2002, there was an upper limit of 50% on the ratio of capital plus interest payments over income)	4% equity if LTV no more than 75% 8% for the part of the loans exceeding 75% of the house value.	Though legally permissible, they are not explicitly market by banks
<b>Finland</b>	21	F (2%) V (97%) Other (1%)	15-20 years	None	Households have the legal right to repay housing loans prematurely. For fixed rate loans, consumer must compensate the creditor for the interest rate differential between the loan and the current market interest rate.	75-80%	No	4% equity	Yes
<b>Sweden<sup>5)</sup></b>	58	F (38%) M (24%) V (38%)			No	80-90%	None	4% equity if LTV no more than 100%	Yes
<b>United Kingdom</b>	60	V (72%) N (28%)				70%		4% equity if LTV no more than 100%	Yes

## Annex I: Chronology of main policy measures

**Table A.1**  
Major reforms of rent regulations since 1980

<b>Belgium</b>	1984: Rent increases linked to CPI. 1985-1987: Indexation temporarily suspended. 1991: Freely negotiated new rental fixed term contracts introduced. 1997: Limits set to new short-term agreements.
<b>Denmark</b>	1990: Condominiums built after 1991 exempt from rent control.
<b>Germany</b>	1983: Introduction of upper limit of 30% in a three-year period on rent increases for sitting tenants; rent escalation clauses and rent contracts linked to a price index permitted. 2001: Upper limit on rent increases in a three-year period reduced to 20%. Period of giving notice for tenants reduced to three months.
<b>Greece</b>	1997: Freely negotiated rents in new contracts. Minimum duration of contracts of three years.
<b>Spain</b>	1985: Freely negotiated rents in new agreements. 1995: Minimum lease of five years (at tenant's option); CPI indexation. One-off updating of existing contracts (to be implemented over ten years).
<b>France</b>	1997: New contracts liberalised.
<b>Ireland</b>	No significant controls/regulations on rent contracts.
<b>Italy</b>	1992: Freely negotiated new fixed-term contracts introduced. 1998: Two types of "free" contracts: freely negotiated at the individual level at the start and contracts where yearly rent increases are collectively negotiated by landlords and tenants
<b>Luxembourg</b>	1987: Increases in the rents of dwellings built before 10 September 1944 and clarification of the meaning of invested capital for those built after this date.
<b>Netherlands</b>	1994: Liberalised more expensive segment of rental market.
<b>Austria</b>	1986: Partial liberalisation of new tenancies. 1994: "Indicative value rent system" introduced.
<b>Portugal</b>	1981: Freely negotiated rent contracts for new tenancies introduced (but no indexation allowed in these contracts). 1985: Mechanism of updating all rents with CPI; one-off updating of old contracts (but still remaining very distant to rents in new contracts). 1990: Possibility of setting a limit on the duration of rental contracts. 1993: Possibility of introducing different indexation mechanisms under specific circumstances.
<b>Finland</b>	1990-1995: Gradual liberalisation of rent controls. after 1995: rents are practically free from public control; they should not be "excessive" (in a legal sense).
<b>Sweden</b>	No major reforms that could improve the efficiency of allocation in the rental sector have been undertaken.
<b>United Kingdom</b>	1988: Assured tenancy – eviction easier and initial rent and indexation negotiated.

**Table A.2****Major reforms of housing tax and subsidy policies in the 1990s**

<b>Belgium</b>	Restriction of property tax reductions to owner-occupiers; continuous increase of transaction taxes (VAT) on new buildings.
<b>Denmark</b>	Removed tax incentives for housing investment; continuous increase of stamp duties.
<b>Germany</b>	Several measures to reduce tax deductions and subsidies for investment in housing; abolished property tax; increased transaction costs.
<b>Greece</b>	Raised property tax and transaction costs through increased administrative value of real property for tax purposes; introduced new tax on large real estate property.
<b>Spain</b>	Reduced tax deductions for secondary and rented dwellings; abolished imputed income on principal dwellings.
<b>France</b>	Raised property tax; abolished taxes on imputed rents; tax reduction for low-income households; reduced transaction taxes.
<b>Ireland</b>	Reduced tax deductions for interest payments, abolished for landlords; abolished property tax and halved capital gains tax.
<b>Italy</b>	Introduced local property tax; tax reductions for owner-occupiers and some categories of landlords; reduced registration tax for owner-occupiers.
<b>Luxembourg<sup>1)</sup></b>	Introduced an additional grant for architect's or consulting engineer's fees; increase in the amortisation rate applicable to rental dwellings; increase in the amount of mortgage interest deductible from income taxes; introduced interest allowance that is not subject to any conditions concerning useful living space; extension of the state aid to middle-income households; registration tax regime made more favourable; introduced VAT refund for new dwellings and repairs; increase in the maximum amounts of loans taken into account in the calculation of the interest allowance and interest subsidy.
<b>Netherlands</b>	Reduced tax relief for interest payments and restricted it to principal dwelling; introduced subsidies for low-income first-time buyers.
<b>Austria</b>	Reduced indirect subsidies; establishment of housing construction banks.
<b>Portugal</b>	Restriction on and later end of mortgage subsidies for new loans.
<b>Finland</b>	Introduced state-guarantees for owner-occupier's loans.
<b>Sweden</b>	Increase of property tax rate; tax reform to neutralise incentives for different forms of housing investment.
<b>United Kingdom</b>	Phased out interest relief system.

Sources: NCB contributions.

1) Several important amendments to the Luxembourg legislation were enacted in July 2002: (i) the regime of registration duties was simplified and a tax credit was introduced; (ii) the VAT regime was made more favourable (e.g. direct application of the low 3% rate); (iii) tax rate on profits from real estate sales reduced by half for 2002, 2003 and 2004; and (iv) improvement of the amortisation regime applicable to rental dwellings.

**Table A.3****Policy changes in EU countries that affect the mortgage market**

<b>Belgium</b>	1992 (in force since end of 1994): Law permitting the introduction of variable interest rate loans (“referenced loans”) and reducing the maximum early repayment fee. 1995: Amendment of 1992 law on “referenced loans”. 1990s: Wave of mergers and privatisations in the banking sector.
<b>Denmark</b>	Early 1990s: Liberalisation of mortgage contract terms and free access to withdrawal of net equity in houses and flats. 1997: Adjustable rate loans introduced.
<b>Germany</b>	Interest rate deregulation in the 1970s.
<b>Greece</b>	Mid-1980s to early 1990s: Gradual liberalisation of quantitative constraints, interest rates and other terms and conditions on housing loans. Late 1990s: Liberalisation of mortgage refinancing; expansion of non-specialised commercial banks into mortgage lending.
<b>Spain</b>	1974-1981 and 1987: Interest rate liberalisation. Early 1980s: Abolition of differences in the activities permitted for different types of banks. 1989: Savings banks allowed opening branches outside their home regions. 1992: Securitisation of mortgage loans introduced. 1994 and 1996: Introduction of upper limits on cancellation fees.
<b>France</b>	1984: Bank specialisation requirements reduced. 1987: Elimination of credit controls. 1999: Reform of securitisation of mortgage loans. 1999: Reduced limits on early repayment fees.
<b>Ireland</b>	1984: Formal guidelines for bank lending to private sector ended. 1985: Interest rate deregulation. 1991-1999: Reductions in the primary liquidity ratio from 8% to 2%. Second half of 1990s: Securitisation introduced.
<b>Italy</b>	1983: Interest rate deregulation. 1983: Credit ceilings eliminated (and temporarily re-imposed in 1986 and 1987). 1990: Abolition of administrative controls on branching. 1993: Rationalisation of banking regulatory framework. Separation of long-term and short-term credit institutions abolished. 1995: Increase of legally maximum LTV from 75% to 80% (can be raised to 100% if other guarantees are posted).
<b>Luxembourg</b>	None.
<b>Netherlands</b>	1980: Interest rate deregulation. 1992: Relaxation of the lending criteria.
<b>Austria</b>	1980: Liberalisation of interest rates, 1981: Abolition of credit controls. 1985: Re-establishment of interest rate controls through interest rate cartel. 1987: Prudential reforms, capital requirements tightened. 1993: Interest rate cartel expires. 1999: Savings bank reform: banks enjoy more flexibility in their interest rate policies. 1992-2000: Privatisation of state-owned banks.
<b>Portugal</b>	1983 onwards: Easing of entry restrictions in the banking and insurance sector. 1984-1989: Liberalisation of interest rates (1984 for deposit rates and 1989 for lending rates). 1990-1991: Abolition of credit controls and credit guidelines. Early 1990s: Legislation of entry, branching, specialisation and segmentation restrictions. Since 1993: Strengthening of prudential requirements and liberalisation of investment services.
<b>Finland</b>	1986: Abolition of interest rate controls. 1987: Government withdrew guidelines on mortgage lending. 1989: Securitisation introduced.
<b>Sweden</b>	1983: Mortgage institutions freer to issue bonds for refinancing of old dwellings. 1985: Loan ceilings for banks abolished. 1986: Portfolio regulations on insurance companies dropped.
<b>United Kingdom</b>	1980: Removal of credit controls. Banks permitted to lend mortgages. 1986: Building societies allowed expanding their lending business. 1987: Securitisation introduced.

## **Annex 2: Data sources**

*GDP*: European Commission Ameco database and ESA 95.

*Disposable income*: OECD Economic Outlook. For West Germany after 1991, Bundesbank estimates.

*Residential investment*: ESA 95 and NCBs.

*Housing loans to households*: NCBs.

*House prices*: National sources (see Box I). For West Germany, estimates by the Bundesbank based on the weighted average of construction prices (70%) and land prices (30%).

*House prices in capital cities*: NCBs.

*Stock market index*: Bank for International Settlements.

*Private consumption deflator*: European Commission Ameco database. For West Germany, Bundesbank.

*HICP*: Eurostat.

*Rents*: Bank for International Settlements and NCBs. For data after 1995, Eurostat.

*Mortgage interest rates*: NCBs.

*Construction costs*: NCBs and EU Short-term Statistics Regulation (STS-R).

*Land prices*: NCBs.

*Tenure structure*: Housing statistics in the European Union 2002<sup>64</sup> and NCBs.

*Number of households*: Housing statistics in the European Union 2002.

*Population*: Eurostat.

*Taxes and subsidies*: NCBs.

<sup>64</sup> Report data from the various national authorities in charge of housing policies, from Eurostat and the European Mortgage Federation. See <http://mrw.wallonie.be/dgatlp/dgatlp/Pages/Log/Pages/accueil/Accueil.htm>.