ARTICLES

ASSESSING HOUSE PRICE DEVELOPMENTS IN THE EURO AREA

Euro area residential property prices have been relatively dynamic on average over the last five years, although the pattern has differed significantly across countries. The strong demand for housing has in part been related to the decline in interest rates which, in many countries, accompanied the introduction of the single currency and significantly increased the affordability of higher-priced housing. At the same time, the rise in demand for housing has met with only a gradual increase in supply.

The rise in house prices and the associated increased levels of household borrowing and indebtedness have occurred in conjunction with tentative signs of a growing risk of overvaluation in some regions of the euro area. This calls for a close monitoring of house price developments, in particular in an environment in which the dynamism of house prices has been accompanied by strong increases in housing loans.

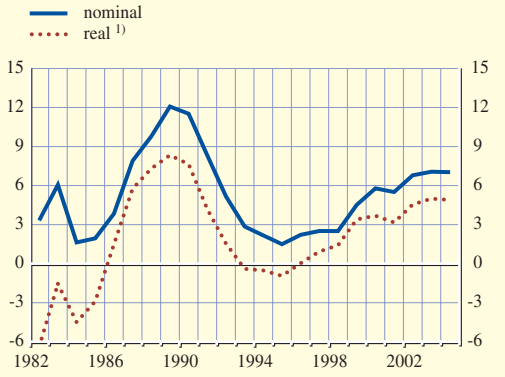
1 INTRODUCTION

Developments in residential property prices are an important factor underlying monetary policy decisions aimed at maintaining price stability in the euro area over the medium term. For example, changes in residential property prices may affect households' consumption behaviour, in particular through wealth effects, as well as residential investment.[1] Typically, house price developments are also closely associated with credit developments. While residential property prices are not included in the HICP, they can have an indirect impact on the rent sub-component.[2] The importance of residential property price developments from a monetary policy perspective also reflects the high economic costs which can be associated with the formation and subsequent bursting of house price bubbles.[3]

From a monetary policy point of view, it is essential to understand the factors that drive house prices, given their importance for the economy. This article assesses the current situation in the euro area housing market, drawing on two approaches to monitoring house price developments. The first approach combines information from factors influencing both housing demand and supply. Demand and supply need to be analysed separately, since the supply side of the housing market is relatively inert in the short term, implying that house price developments over this horizon are mostly driven by demand factors. The second approach assesses house price developments on the basis of a comparison of the returns on housing investment with alternative, comparable investment opportunities.

Chart 1 Residential property prices in the euro area

(annual percentage changes)



Source: ECB calculations based on national data.
1) Deflated by the HICP.

Section 2 reviews recent developments in residential property prices at the euro area and country levels. Section 3 examines the demand side of the housing market, while Section 4 considers the supply side. Section 5 presents

1 See the article entitled "Recent trends in residential property prices in the euro area" in the May 2003 issue of the Monthly Bulletin. See also F. Altissimo et al., "Wealth and asset price effects on economic activity", ECB Occasional Paper No 29, June 2005.
2 See Box 2 in the article entitled "The harmonised index of consumer prices: concept, properties and experience to date" in the July 2005 issue of the Monthly Bulletin.
3 See the article entitled "Asset price bubbles and monetary policy" in the April 2005 issue of the Monthly Bulletin.

Residential property prices in the euro area countries

(annual percentage changes)

	1997-2000	2001	2002	2003	2004	2005	2005		
						H1	Q1	Q2	Q3
Belgium [1]	5.0	5.3	7.7	7.8	6.8	.	.	.	.
Germany [2]	-0.5	0.1	-1.2	-0.9	-2.1	-	-	-	-
Greece [2]	10.5	14.5	13.0	5.7	2.6	.	7.3	.	.
Spain [2]	6.2	9.9	15.7	17.6	17.4	14.8	15.7	13.9	13.4
France [1]	4.5	7.9	8.3	11.7	15.2	15.5	15.7	15.3	14.7
Ireland [2]	21.1	8.1	10.1	15.2	11.4	10.8	11.1	10.5	11.5
Italy [2]	2.1	8.0	12.9	10.0	9.0	11.6	-	-	-
Luxembourg [3]	3.8	13.8	11.9	13.3	.	-	-	-	-
Netherlands [1]	14.6	11.2	8.4	4.7	3.9	4.2	4.3	4.1	3.8
Austria [2], [4]	-1.9	-3.6	-1.0	0.9	-0.6	.	-	-	-
Portugal [2]	5.8	3.6	1.1	1.6	0.4	1.9	0.5	3.2	.
Finland [2]	10.7	-0.5	7.4	6.3	7.3	4.1	3.8	4.5	6.0
Euro area [2]	3.8	5.5	6.8	7.1	7.0	7.7	-	-	-

Sources: National data and ECB calculations.
Notes: The euro area estimate for H1 2005 is based on available country data and ECB estimates. The semi-annual estimate is partly derived from annual results; therefore, the accuracy of the semi-annual data is lower than that of the annual data.
1) Existing dwellings.
2) All dwellings.
3) Houses.
4) Up to 2000, Vienna only.

the asset pricing approach to valuing housing and Section 6 concludes.

2 DEVELOPMENTS IN EURO AREA RESIDENTIAL PROPERTY PRICES

Euro area residential property prices recorded their fifth year of strong dynamism in 2004, increasing by an estimated 7.0% (4.9% in real terms when deflated by the HICP), after an increase of 7.1% (5.0% in real terms) in 2003 (see Chart 1). This strong overall growth, however, masks considerable diversity at the country level; the recent dynamism largely reflects buoyant residential property markets in Spain, France and Italy, whereas in Germany residential property prices have shown a slight decline (see table above). Available quarterly data for 2005 continue to show strong increases in the case of Spain, France and Ireland, albeit at a slightly more moderate pace than in 2004. In the Netherlands and Portugal, the moderate trends recently observed appear to be continuing. Based on available country data, the annual rate of growth in residential property prices in the euro area is estimated at 7.7% for the first half of 2005. Owing to the non-harmonised underlying national data, euro area data provide only a broad indicator of price developments and should therefore be interpreted with caution. Box 1 presents the indicators of residential property prices and, more broadly, the structural housing indicators compiled by the ECB and the NCBs.

Box 1

AVAILABILITY OF KEY NON-FINANCIAL HOUSING MARKET INDICATORS

Given the intensified debate on asset prices and their impact on the economy, comprehensive housing statistics have become increasingly important. However, officially published euro area housing statistics are still far from being complete. This box presents key non-financial statistics for the housing market in the euro area.

Residential property price statistics

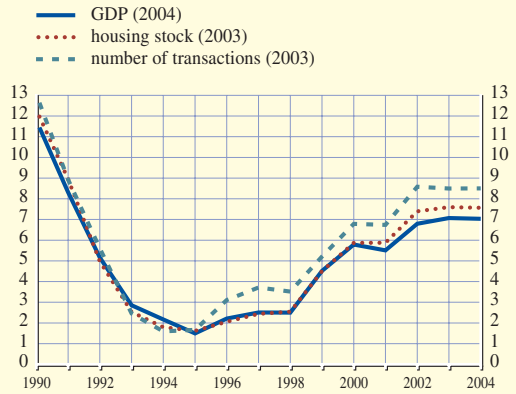
The ECB compiles and publishes a semi-annual indicator of euro area residential property prices, which is based on non-harmonised national data. Given that official house price indices for most euro area countries do not exist, the ECB, in close cooperation with the NCBs, also exploits a range of different data sources provided by real estate agencies, mortgage banks and notary organisations. Though very useful for monitoring price trends on the housing market, they have several shortcomings such as an incomplete coverage in terms of region and dwelling type, different price recording practices (e.g. offer prices versus purchaser prices) and different methods for adjusting price data for varying dwelling characteristics. Moreover, the national data differ as regards frequency and timeliness.[1]

To calculate the euro area aggregate, national results are weighted using national GDP shares in the euro area. In principle, house price statistics can be aggregated using either transaction or housing stock-based weights, but this information is not available for some of the countries. However, test calculations using estimates indicate that applying these alternative weighting schemes would lead to a similar trend for a euro area residential property price indicator (see Chart A). For recent years, however, the GDP-weighted indicator shows lower price increases.

The statistical quality of the euro area indicator has improved recently owing to amendments in national data. Additionally, the ECB has started compiling estimates of annual rates of change for the euro area aggregate from 1982 onwards, whereas the former series started only in 1991. However, further improvements are still required. A promising project is the Eurostat pilot study on a price index for owner-occupied housing, which is expected to deliver first results for the euro area by the first half of 2007.[2]

Chart A Euro area residential property prices using different weights

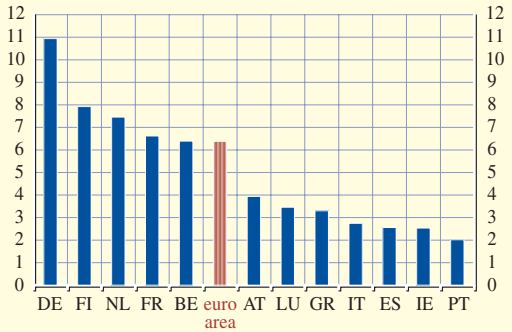
(annual percentage changes)



Sources: ECB calculations based on Eurostat and national data.
Notes: Reference year for weights in brackets. Estimates for missing country weights for the number of transactions and for the housing stock.

Chart B Share of rent expenditure in the HICP in euro area countries

(percentage of total HICP coverage in 2005)



Source: Eurostat.

1 For the statistical background, see the box entitled "Residential property price developments in the euro area" in the December 2003 issue of the Monthly Bulletin.

2 See Box 2 in the article entitled "The harmonised index of consumer prices: concept, properties and experience to date" in the July 2005 issue of the Monthly Bulletin.

Rent price statistics

Rent price indices are included in the HICP for all euro area countries and are based on harmonised statistical methods. These indices are published on a monthly basis around two weeks after the end of the reporting period. The impact of rent price developments on HICP inflation in euro area countries exhibits significant structural differences, as expenditure on rents varies markedly between countries. For instance, the share of rents in the HICP in Germany is more than four times higher than in Spain, Ireland, Italy and Portugal (see Chart B). This reflects the differences in the share of owner-occupiers across countries.

Structural housing indicators

Long-term structural factors are important for assessing housing market developments. The ECB, in cooperation with the EU national central banks, compiles a set of structural housing indicators covering the number of private households, number of dwellings, vacancy rates, number of housing starts and completions, number of housing transactions and type of tenure (broken down into owner-occupied and rented).

Although fully harmonised definitions for these indicators do not exist across European countries, target definitions have been developed and national data take account of these target definitions as far as possible. The availability and timeliness of these indicators vary across countries. Euro area aggregates are compiled by the ECB if country coverage rates exceed a threshold of 80%. Most of the euro area aggregates begin in the early 1990s. The structural indicators for the euro area are of annual frequency. Where national data are available at less than annual frequency (e.g. from a ten-year census), data gaps have been filled by interpolating between existing observations for the purpose of calculating euro area aggregates. Up-to-date national data for the years 2003 and 2004 are only partially available.

For a set of structural housing indicators, the table below presents the first and most recent observations for the euro area. It shows a broadly stable number of dwellings per private household and an increasing vacancy rate. There was almost no change in the share of housing completions and the share of housing transactions in periods for which euro area aggregates have been compiled. The increase in the share of owner-occupiers from 58.2% in 1991 to 60.9% in 2003 is mirrored in the decreasing share of rented accommodation, from 38.1% to 36.1%.

Structural housing indicators for the euro area

Number of dwellings per private household	1.16 (1991)	1.17 (2003)
Vacancy rate	11.4% (1993)	12.4% (2001)
Share of housing completions in the number of dwellings	1.17% (1991)	1.13% (2003)
Share of housing transactions in the number of dwellings	2.12% (1998)	2.17% (2003)
Share of rented accommodation [1]	38.1% (1991)	36.1% (2003)
Share of owner-occupied accommodation [1]	58.2% (1991)	60.9% (2003)

Source: ECB calculations based on national data.
Notes: The number of dwellings and vacancies partly includes secondary and tourist accommodation. The beginning and end of the euro area series are indicated in brackets.
1) Shares of rented and owner-occupied accommodation do not add up to 100% as other types of tenure are excluded (e.g. accommodation let free of charge).

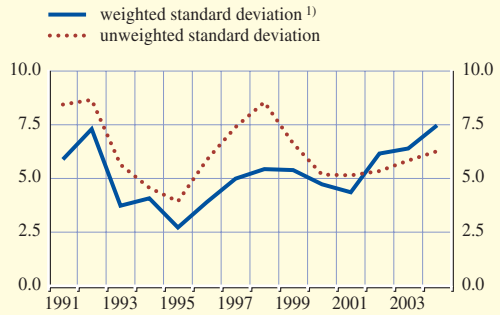
Some caution is warranted when making use of the euro area aggregates, which, in part, include heterogeneous national data; in addition, the country coverage differs over time and across indicators. Further work on this dataset will concentrate on improved country coverage, better timeliness and the provision of longer time series.

Annual rates of growth in residential property prices have been hovering around 6% to 7% since 2000. From a historical perspective, however, the real rates of growth of house prices recorded recently are not excessive compared with the rates observed in past housing market booms. Indeed, in real terms, the recent increase in residential property prices, of around 5%, is less pronounced than that seen in the boom of the late 1980s/early-1990s (around 8%). In addition, the increase observed in the annual rates of growth of residential property prices since the mid-1990s has been much more gradual than the increase observed in the second half of the 1980s.

Finally, it should be noted that measures of residential property price inflation dispersion do not at present suggest that the degree of dispersion across the euro area countries is atypical (see Chart 2). The degree of dispersion according to the unweighted measure seems to be close to its average over the period 1991-2004 and the increase in the weighted measure of dispersion observed since the mid-1990s mainly reflects the subdued developments in residential property prices in Germany. Geographical diversity can be attributed to differences in a number of factors, such as demographics, households' disposable income, the provision and cost of financing for the purchase of properties, fiscal incentives, transaction costs, availability of land, the cost of construction and the rate of owner-occupancy.

Chart 2 Dispersion of residential property price growth rates in the euro area

(percentage points)



Sources: National data and ECB calculations.
Note: Owing to data limitations, Greece is excluded from the computations. Missing data for Luxembourg in 2004 has been extrapolated assuming constant growth in its residential property prices.
1) Based on 2004 GDP weights.

3 ANALYSING HOUSING DEMAND AND ITS DETERMINANTS

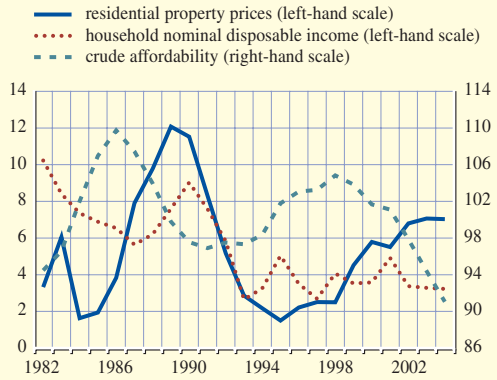
A number of important economic variables can influence the demand for housing and, hence, house price developments. They can be divided into two groups: the non-financial and the financial determinants of housing demand. In the first group, there is much evidence to suggest that housing demand is influenced by residential property prices, household income – both current and expected – and demographic developments. In the second group, as house purchase is often financed with a loan, both the price and availability of mortgage finance can have an impact on housing demand. Developments in measures of affordability, which combine elements of household income and financing conditions, could also help to explain changes in housing demand.

HOUSEHOLD INCOME

A key non-financial factor affecting housing demand is the level of income per household (both current and expected). As the period covered by the series for the number of households in the euro area is still limited (see below), the analysis is often conducted using the series for total household disposable

Chart 3 Residential property prices, household nominal disposable income and crude affordability in the euro area

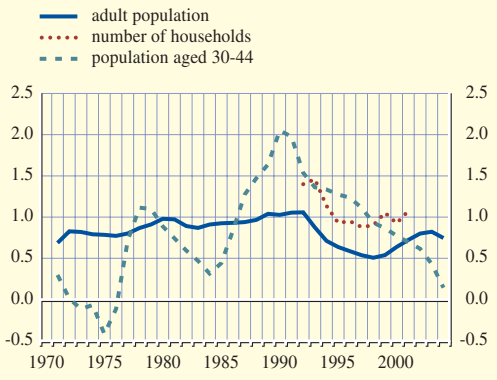
(annual percentage changes; index 100 = average)



Source: ECB calculations based on national data.

Chart 4 Adult population, population aged 30-44 and number of households

(annual percentage changes)



Sources: Eurostat and ECB.

income. In addition, as it is difficult to assess future developments in income, the analysis mostly relies on current developments in income. Since the early 1980s, the annual rate of change in residential property prices has hovered around the annual growth rate in household nominal disposable income (see Chart 3). This suggests that, in the long term, they tend to move together. However, in certain periods, residential property price developments might deviate from household nominal disposable income developments.

Since 1999, the annual rate of change in residential property prices has been systematically above the annual rate of growth in household nominal disposable income. However, this may, in part, be a correction of the developments seen in the period between 1994 and 1998, when household nominal disposable income grew at a higher rate than residential property prices. As a result, one "crude" measure of affordability – the ratio of the level of household nominal disposable income to the level of residential property prices[4] – has continuously declined since 1999, after increasing between 1994 and 1998. Hence, changes in household nominal disposable income might not fully account for the recent dynamism in residential property prices.

DEMOGRAPHY

Another important non-financial determinant of housing demand is demography. For example, an increase in the number of households is likely to put upward pressure on housing demand and, hence, on house prices. As shown in Chart 4, the number of households has grown considerably more than the adult population over the last fifteen years, reflecting a structural shift towards smaller households. This development might have contributed to the dynamism of housing demand. In addition, migration flows may recently have played an important role in supporting housing demand in a number of countries, such as Spain, Ireland and Italy.

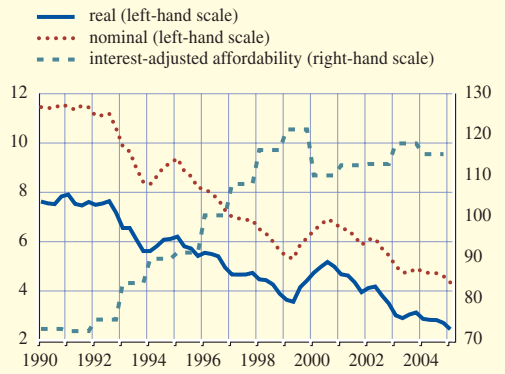
Looking ahead, if such developments in household size and migration flows were to continue, they could partly dampen the potentially negative impact resulting from an expected decline in the growth rate of the population[5] and, in particular, of the purchasing age group – typically persons in their early 30s to mid-40s.

4 This is the inverse of what is commonly labelled the (house) price-to-(household)earnings ratio.

5 As embedded, for example, in Eurostat population projections. For more details, see Eurostat News Release (48/2005), "EU25 population rises until 2025, then falls", 8 April 2005.

Chart 5 Nominal and real bank lending rates for house purchase and interest-adjusted affordability

(percentage points; index 100 = average)



Sources: Consensus Economics and ECB.
Notes: The interest rate data are deflated by Consensus Economics long-term inflation expectations. MFI interest rates have been aggregated using amounts outstanding whenever available. Otherwise, aggregated new business volumes for 2003 have been used. In January 2003 there was a statistical break in the interest rate series. To take this into account, past levels of previous interest rate statistics were adjusted on the basis of the difference between the old and the new interest rate statistics levels in January 2003.

LENDING RATES AND THE USER COST OF HOUSING CAPITAL

Turning to the financial determinants of housing demand, the decline in real bank lending rates for house purchase has supported housing demand over the period of recent strong dynamism in house prices (see Chart 5). This decline has been common, to differing extents, to all maturities. This is important for the euro area, since the share of fixed and flexible mortgage rates varies significantly across euro area countries. Overall, all countries have benefited from the favourable financing conditions.

The decline in mortgage rates has made buying a property more affordable. In order to quantify this effect, a measure of interest-adjusted affordability can be computed as the ratio of household nominal disposable income to the income that households would need in order to buy a house under the prevailing borrowing conditions.[6] When adjusted to account for changes in nominal mortgage rates, affordability has remained broadly stable over the last five years, after showing a continuous increase in the 1990s. This contrasts sharply with the measure of "crude" affordability presented previously, which has declined continuously over the last five years. This indicates that, from an affordability point of view, the very low levels of interest rates compensated for the strong increase in residential property prices.

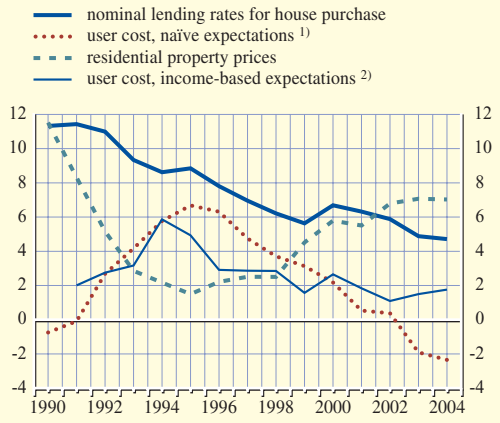
Mortgage rates are only one component of the costs borne when investing in housing. Costs related to the maintenance and repair of the house, the depreciation of the house and the possible tax payable on housing capital gains should also be considered. All these costs, adjusted to take into account the potential capital gain/loss that can arise when investing in a house, constitute the user cost of housing capital. This measure provides an estimate of the expected cost of holding housing capital for a given period and, as such, is an important factor to consider when analysing the demand for housing. As the impact of some of these costs is difficult to evaluate, in particular at the euro area level, the most commonly used measure of the user cost of housing capital combines the lending rate for house purchase and the expected gain/loss resulting from changes in residential property prices over the given period.

Chart 6 shows two measures of the user cost. In the first measure, it is assumed that households form expectations of house price increases simply by extrapolating last year's house price increases. In the second measure, house price expectations are based on an extrapolation of last year's disposable income growth. The intuition behind the second measure is that since households are aware that, in the long

6 The borrowing conditions also include, inter alia, the length of the mortgage loan, the loan-to-value ratio (the part of the house price that is covered by the mortgage loan) and the qualifying ratio (the maximum percentage of household income that can be used to pay the monthly mortgage repayment). In the following, the length of the mortgage loan, the loan-to-value ratio and the qualifying ratio are assumed to be 20 years, 70% and 25% respectively. These are assumed to be "typical" values for the euro area.

Chart 6 Residential property prices and nominal user costs of housing capital

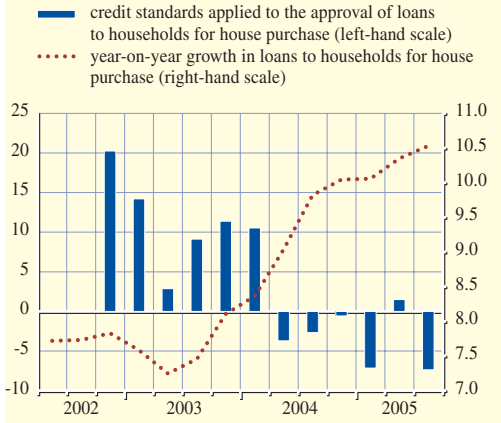
(percentage points; annual percentage changes)



Sources: ECB and ECB calculations based on national data.
1) Households form expectations of house price increases by simply extrapolating last year's house price increases.
2) House price expectations are based on an extrapolation of last year's disposable income growth.

Chart 7 Banks' credit standards and loans for house purchase

(net percentages; annual percentage changes)



Source: ECB.
Note: The net percentage for the question on credit standards in the bank lending survey for the euro area is defined as the difference between the sum of the percentages for "tightened considerably" and "tightened somewhat" and the sum of the percentages for "eased somewhat" and "eased considerably".

term, house prices and disposable income typically move together, they might not perceive house price increases as permanent when these increases far exceed those in income. These two examples are only illustrative, and caution is warranted in interpreting developments in these two measures, as other factors may also influence the formation of expectations.

Although the two measures suggest that the user cost of housing capital was low in 2004, their developments over the last fifteen years have differed significantly. This emphasises the importance of expectations of future house price increases in determining the user cost. Chart 6 indicates that the two measures are close to their lowest level since the early 1990s. However, while the first measure has displayed a clear downward trend over recent years, the second measure has been broadly stable over the last five to six years. Given the nature of the expectations included in the first measure, the downward trend in this measure could be seen as indicating potentially excessive optimism about future house price developments. By assuming that in the future house prices will grow at the same high rate as in the recent past, investors might perceive the user cost of housing capital to be very low, prompting them to invest more in housing. This extra demand will push house prices higher and, through the expectation mechanism, will give rise to the perception of a lower user cost of capital. This self-fulfilling price dynamic, if not countervailed by other factors, could give rise to substantial price misalignments, which, in the end, could entail substantial price corrections and balance sheet problems for the households concerned.

CREDIT AND NON-INTEREST RATE FINANCING CONDITIONS

In addition to interest rates and the user cost of housing capital, overall financing conditions faced by homebuyers also depend on credit availability and credit terms and conditions. These can have an additional impact on the demand for housing (in particular in the presence of credit market imperfections, such as borrowing constraints). Both interest rate and non-interest rate components of overall lending conditions for housing are, inter alia,

analysed regularly by the ECB in the context of the bank lending survey for the euro area.

As shown in Chart 7, there has been a progressive easing of credit standards applied by banks for the approval of loans to households for house purchase since the inception of the survey in 2002 and a swing from net tightening towards net easing in most of the more recent period. This has been associated with a noticeable pick-up in the year-on-year growth of housing loans since the second quarter of 2003, reaching double-digit levels in recent quarters. More favourable credit supply conditions may thus have been a factor behind dynamic growth in mortgage loans and may have contributed to stronger housing demand. The easing of credit standards has been reflected in a narrowing of margins on loans as well as in non-price terms and conditions, such as changes in the loan-to-value ratio and a lengthening of the maturity of new loans over this period.[7] At the same time, the bank lending survey indicates that banks perceive housing market prospects to be one of the main factors underpinning the demand for housing loans. Thus, the buoyancy of housing markets may in part be fuelled by strong loan dynamics and, at the same time, may be feeding back into stronger mortgage lending.

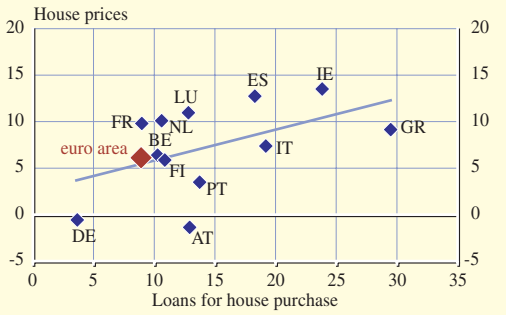
One possible source of feedback from house prices into loan dynamics is the impact of the level of house prices on the net wealth of households and, in particular, the availability and value of collateral. Greater availability and a higher value of collateral encourage additional borrowing, as they reduce the risks perceived by lenders (thereby diminishing the problems of moral hazard and adverse selection associated, in particular, with unsecured lending). Such credit or collateral channels of monetary policy transmission are of particular relevance in the interplay between housing and mortgage markets in the context of financial cycles.[8]

Against this background, an analysis of money and credit developments in conjunction with house price dynamics may offer additional indications regarding the sustainability of house price movements, as in the case of other asset valuations. In particular, ample liquidity conditions may have spillover effects on the prices of non-monetary assets such as bonds, equities and housing, and, empirically, episodes of strong money and credit growth tend to be associated with boom-bust cycles in asset valuations.[9] In this context, the analysis of household balance sheets is also important from the perspective of financial stability.[10]

Chart 8 shows that, since the inception of Monetary Union, growth in mortgage lending and house price dynamics have tended to be broadly in line with one another. Euro area countries with buoyant property markets have also seen the strongest growth in mortgage lending over the past five years. However, it

Chart 8 Growth in house prices and mortgage lending

(average annual percentage changes for the period 1999-2004)



Source: ECB.
Note: Data for Luxembourg up to 2003.

7 For the results of the most recent survey, see the box entitled "The results of the January 2006 bank lending survey for the euro area" in this issue of the Monthly Bulletin, and the ECB's website (http://www.ecb.int/stats/money/lend/html/index.en.html).

8 See, for example, M. Iacoviello, "House prices, borrowing constraints and monetary policy in the business cycle", American Economic Review, 95 (3), pp. 739-64, June 2005, and K. Aoki, J. Proudman and J. Vlieghe, "House prices, consumption, and monetary policy: a financial accelerator approach", Bank of England Working Paper No 169, 2002.

9 See the article entitled "Asset price bubbles and monetary policy" in the April 2005 issue of the Monthly Bulletin and C. Detken and F. Smets, "Asset price booms and monetary policy", ECB Working Paper No 364, May 2004.

10 See, for example, the December 2005 issue of the ECB's Financial Stability Review.

remains difficult to determine the extent to which credit growth is a passive reflection of house price developments, as opposed to itself contributing to fuelling housing market dynamics. Moreover, both variables tend to be driven by a number of additional factors.

The evidence of significant cross-country differences in house price and credit developments shown in Chart 8 – despite the single monetary policy and improvements in financing conditions since 1999 – points to the continued importance of national determinants. At the same time, divergent growth rates in house prices and credit over the last five years may also be consistent with a process of convergence, taking into account the rather different starting levels of house prices and mortgage debt. Box 2 reviews a number of structural features of euro area housing finance systems that could explain the differences in loan growth and the dispersion of mortgage debt-to-GDP ratios.

Box 2

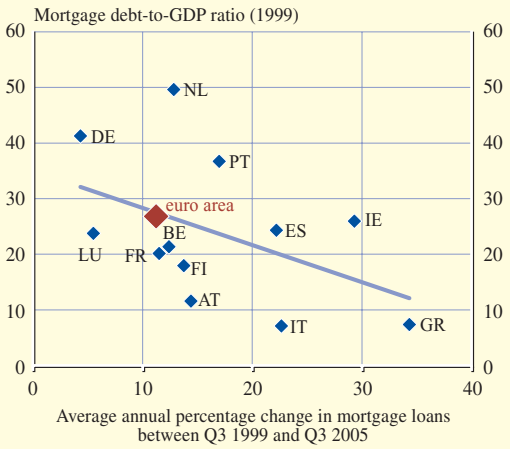
STRUCTURAL FEATURES OF EURO AREA MORTGAGE MARKETS

The mortgage debt-to-GDP ratio in the euro area has been rising rapidly in recent years. In terms of the outstanding amounts of MFI loans to households for house purchase, this ratio increased to around 35% in mid-2005, from 25% in 1999. This increase reflects to a large extent the strong borrowing dynamics in an environment of lower interest rates in several euro area countries following the introduction of the single monetary policy. In addition, it could also be related to financial liberalisation and improved efficiency and competition in some euro area countries' mortgage markets.

Countries with initially lower mortgage debt ratios on average experienced stronger mortgage loan growth than countries with initially higher debt ratios (see Chart A). This may be an indication of an ongoing catching-up process. However, in 2005, debt ratios continued to differ

Chart A Mortgage loan growth and the mortgage debt-to-GDP ratio

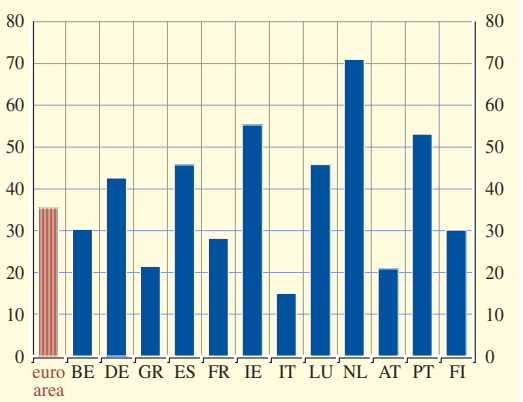
(percentages)



Source: ECB.
Note: Debt and loan growth are based on MFI data.

Chart B Mortgage debt-to-GDP ratio

(percentages; Q3 2005)



Source: ECB.
Note: Debt levels are based on MFI data.

significantly across member countries (see Chart B). A number of country-specific structural features in mortgage markets could help to explain such differences. The remainder of this box looks into some of these features. When interpreting these features, it should be borne in mind that they can change over time.[1]

First, the demand for housing loans in a given country depends on demographic factors and national customs. These include, for example, the share of the population in the house purchasing age group, which typically comprises persons in their early 30s to mid-40s. Another factor might be the share of double-income households, which could favour higher loan-to-value (LTV) ratios and thus result in higher levels of mortgage debt. Further important factors include differences in the average size of households and in the home-ownership ratio. For instance, anecdotal evidence suggests that it is more common in some countries than in others to share residential property across different generations of a family and/or to finance a house purchase directly through inter-generational transfers and bequests, limiting the demand for mortgage loans. At the same time, a lower degree of private home ownership (for instance because a country has a large public housing sector) should, in principle, be associated with lower levels of household indebtedness.

Second, differences in mortgage debt ratios might also reflect specific features of the housing market, such as differences in the average price or cost of a house. At first sight, it may be argued that high absolute prices/costs for residential property make it difficult for households to accumulate the savings necessary for the required down-payments and are thus consistent with low ownership and mortgage debt ratios. However, more fundamentally, it can be assumed that the level of house prices/costs should be related to a country's level of development, as measured by per capita income, and thus also to mortgage debt levels.

Third, differences in household indebtedness may also be related to financial sector characteristics and the ease with which households have access to credit. One factor in this respect is, for instance, the range of available mortgage products and its impact on the amount of mortgage debt taken out by households. The relevant characteristics include variations in the maximum loan size and in the availability of loans to borrowers with poor credit records. Typically, national practices differ with respect to the length of time over which loans are repaid, which tends to be shorter in southern Europe (with a typical loan term of around 15 years) than in other European countries (in which 25 to 30-year loan terms are the norm). The average size of a loan may also be higher if the underlying LTV ratio applied by banks in granting loans is higher. The positive correlation of LTV ratios and the amount of outstanding mortgage debt is confirmed at the macroeconomic level. Differences in the LTV ratios are likely to be all the more important in the presence of mortgage equity withdrawal (MEW), e.g. if mortgages can be refinanced for larger amounts than the outstanding debt and can be used for consumption or investment in financial assets.[2]

1 See Box 1 entitled "Features of mortgage contracts in the euro area" in the November 2004 issue of the Monthly Bulletin for a discussion on the prevalence of fixed versus variable rate contracts. This structural feature of mortgage markets is crucial for the strength of monetary transmission, but bears less of a relation to mortgage debt levels.

2 More broadly, MEW refers to any household borrowing that is secured on the housing stock but not invested in it. To date, MEW has been uncommon in most euro area economies, with the notable exception of the Netherlands. It could, however, potentially be a driving force behind mortgage debt and may also affect the sensitivity of consumption to changes in interest rates and house price valuations.

Finally, differences in household indebtedness across countries may also reflect fiscal measures. Such measures include tax deductibility of interest payments and capital gains taxes on housing gains. For example, in some countries in which there is interest deductibility and/or where mortgages do not need to involve the payment of principal over the life of the mortgage, the tax advantage of borrowing can be exploited. The structure of marginal tax rates also influences the attractiveness of the deductibility of mortgage interest payments. The higher the marginal tax rate, the greater the benefit of interest deductibility. Differential tax treatment of the purchase of housing versus the purchase of other assets will also affect households' decisions about whether to use their own house as an investment vehicle.

To conclude, there appears to have been some convergence of mortgage debt ratios in recent years, fostered by the convergence of interest rates and, possibly, by financial deregulation in a number of mortgage markets. However, household indebtedness still varies considerably across euro area countries, reflecting a number of structural features which continue to differ in euro area mortgage markets.

4 ANALYSING THE SUPPLY SIDE OF THE HOUSING MARKET

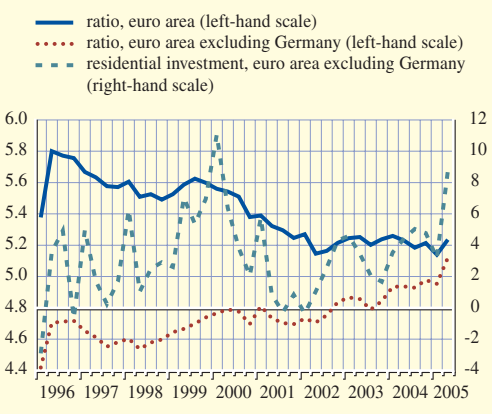
The relative inertia of housing supply in the short run implies that demand factors are prominent in explaining residential property price developments at this horizon. In the long run, supply can adjust to a potential disequilibrium and become the main determinant of housing stocks. Hence, when assessing house price trends, it is also important to monitor developments in housing investment and factors that can influence it, such as costs and output prices in the construction sector. In addition, it should be borne in mind that local policy initiatives aiming at, for instance, facilitating building permit procedures or increasing access to land or the supply of social housing all play a role in shaping the supply side reaction to the strong house price increases seen in some countries.

On the supply side, euro area residential investment as a percentage of GDP has been on a downward path since 1996 (see Chart 9). However, this reflects, to a large extent, developments in Germany, which has witnessed a declining residential investment-to-GDP ratio since 1995, after a period of strong residential investment in the early 1990s following German unification and immigration from eastern Europe. Excluding Germany, the residential investment-to-GDP ratio in the euro area appears to have increased slightly since 1999. At the country level, residential investment has proved particularly strong in Spain and Ireland over the last ten years on average.

Other supply-side indicators, such as building permits granted and the number of housing completions, confirm that the supply side of the housing market has in part responded to the

Chart 9 Ratio of residential investment to GDP and residential investment in the euro area

(percentage points; annual percentage changes)

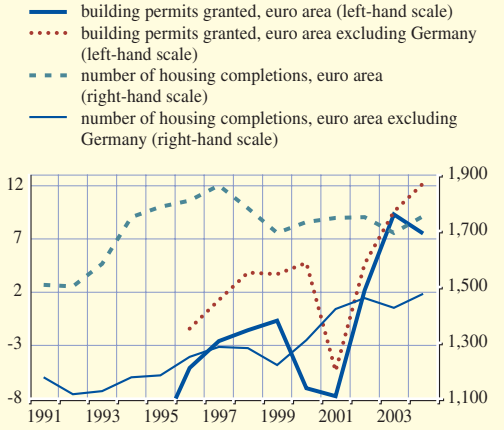


Sources: Eurostat and ECB calculations.

strong increase in housing demand. It should be noted that building permits granted can be interpreted as a leading indicator of changes on the supply side, while the number of housing completions measures the most recent changes in supply conditions. In order to focus attention on countries that have experienced strong house price developments and would thus be expected to show some supply-side response, the indicators have also been computed for the euro area excluding Germany. As shown in Chart 10, after a sharp decline in 2001 the annual rate of growth of building permits granted in the euro area excluding Germany resumed an upward path, peaking at the end of 2004. The number of housing completions has also increased substantially since house prices accelerated at the end of the 1990s.

Chart 10 Building permits granted and housing completions in the euro area

(annual percentage changes; level)



Sources: Eurostat and ECB calculations based on national data.

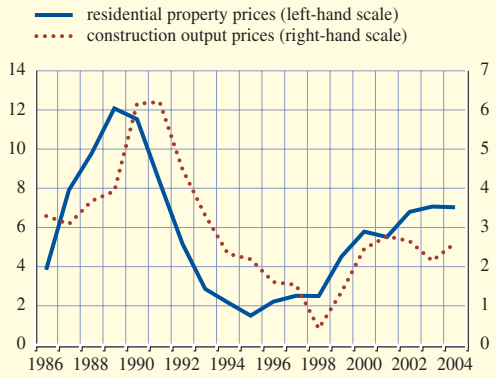
Finally, vacant accommodation can constitute an additional source of supply that could quickly become available and in some cases be a source of instability for the housing market. As shown in Box 1, approximately one residential property in eight was vacant in the euro area in 2001. It could be that a part of this vacant accommodation is owned by investors for speculation purposes and that they might keep them in the expectation that prices will continue to increase. Were house price expectations to become more pessimistic, it cannot be excluded that these investors would put their property on the market in order to realise their gain (or minimise their loss), thus providing an additional and destabilising impetus to the price correction. However, information about the share of vacant properties owned for speculative purposes is unavailable, while secondary and tourist accommodation is also partially included in the vacancy statistics. It is therefore difficult to assess the associated risks with a high degree of precision.

Overall, if the recent favourable developments in the supply indicators were to continue, they could play a role in alleviating some pressure in the market and contribute towards lower house price increases in countries which have experienced strong house price increases in the recent past.

Among the factors that may affect the response on the housing supply side, the costs faced by the construction sector play an important role, as they have a direct impact on the expected return on the investment. These costs are mainly of two types: costs connected with the acquisition of the land and costs connected with the construction of the property. The latter, measured by construction output prices – which exclude land prices – are shown in Chart 11, together with the growth rate of residential property prices. Although the two series show a certain degree of correlation, they grow at very different rates. In 2004, for example, while residential property prices grew at an annual rate of 7.0%, construction output prices grew at an annual rate of 2.6%. The recent increase in residential property prices cannot therefore be explained in terms of pressures from costs connected with the construction of the property. However, caution is warranted, since the construction output price series does not include land prices. The impact of land prices on the overall cost faced by housebuilders is rather difficult to

Chart 11 Construction output prices and residential property prices

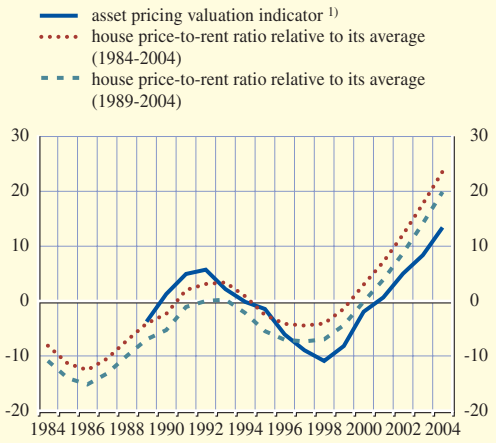
(annual percentage changes)



Sources: Eurostat and ECB calculations based on national data.

Chart 12 House price valuation for the euro area

(percentage points)



Sources: Eurostat and ECB calculations.
1) This indicator is the unexplained part of the regression of the house price-to-rent ratio on real ten-year government interest rates.

assess for the euro area owing to a lack of data. However, in the light of past episodes of strong dynamism in house prices in countries where such data are available, such as Japan in the early 1990s,[11] it is possible that land prices have contributed to the current dynamism observed in euro area residential property prices.

5 ASSET PRICING APPROACH TO HOUSING MARKET VALUATION

House price developments can also be assessed using an "asset pricing approach". This approach focuses on the role of housing as an investment.[12] The rationale behind this approach is that the price of a house should not be very different from the discounted flow of all its future rents. In addition, the return on a housing investment – approximated by the rent-to-house price ratio – should be equal to the returns on alternative investment opportunities bearing the same risk. In a simple version of the asset pricing approach to valuing house prices, the house price-to-rent ratio can be regressed on real ten-year government interest rates. The idea behind this regression is that the rental returns from housing investment should not deviate too far from the returns generated from an investment in government bonds. The unexplained part of the regression of the house price-to-rent ratio on the real ten-year government interest rates can thus be seen as a rough indicator of housing market valuation. For example, when rental returns are low relative to bond yields, this may be suggestive of some overvaluation in house prices, and vice versa.

Chart 12 shows this indicator together with a simpler valuation measure, namely the deviation of house price-to-rent ratios from their historical average (calculated for the periods 1984 to 2004 and 1989 to 2004). The three valuation measures appear to indicate that there has been a positive valuation gap since 2001. According to these simple gauges, residential property prices are currently 15%

11 See Box 2 entitled "Approaches to assessing house price valuations" of the April 2005 Monthly Bulletin article entitled "Asset price bubbles and monetary policy".

12 This approach is described in detail in Box 2, ibid.

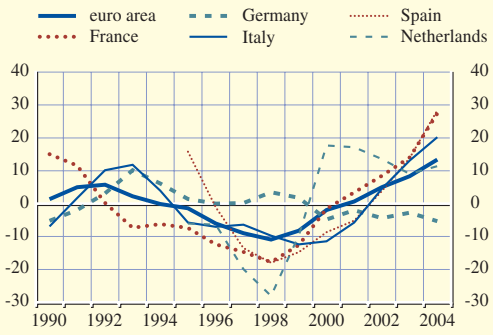
to 25% above their historical average. By comparison with the last episode of strong residential property price increases in the early 1990s, the positive valuation gap is today significantly larger.

However, caution is warranted in interpreting these results, since there are three main caveats attached to these approaches. First, in the theoretical asset pricing model, other elements enter the relationship between the house price-to-rent ratio and interest rates, such as the housing risk premium – i.e. the additional return over the risk-free rate that investors require to bear the risks related to the housing investment – or the expected growth rate of rents, which, in the simple version used here, are taken as constant. As a result, in using the regression, there is an implicit hypothesis that the relationship between the house price-to-rent ratio and real ten-year government interest rates has not changed over time. Second, as shown in Chart 12, the level of the historical average will depend on the period used to analyse this relationship. Third, euro area rental markets are highly regulated, implying that rents may not adjust quickly to price/rent misalignments. Nevertheless, keeping these caveats in mind, the levels reached by these valuation measures might be seen as a tentative sign of increasing risks of "overvaluation" in the euro area housing markets in recent years.

At the country level (see Chart 13), among the five largest euro area countries the asset pricing valuation measure – i.e. the unexplained part of the regression of the house price-to-rent ratio on real ten-year government interest rates – would point to increasing deviations from historical averages in Spain and France and, to a lesser extent, in Italy. In the Netherlands the indicator has recently shown some signs of moderation. In Germany, the measure has remained broadly stable at a level close to its 1990-2004 average. Other studies on Spain also conclude that the housing market may be overvalued, albeit to a lesser extent than suggested in Chart 13.[13] By contrast, in the case of Italy, France and the Netherlands, overvaluation is generally not confirmed by studies available for these countries.[14]

Chart 13 Valuation indicator following the asset pricing approach in large euro area countries

(percentage points)



Sources: BIS, Eurostat and ECB calculations.
Note: The valuation indicator shows the unexplained part from an equation linking the house price-to-rent ratio to real ten-year government interest rates.

It is noteworthy that the increase in the measure of overvaluation based on the house price-to-rent ratio does not stem from a decrease in rents. In recent years, rents have shown no sign of significant acceleration, either at the euro area level or in many of the large euro area countries, by contrast with the significant growth in house prices. Only in Germany have rents shown some tendency to decrease over time in line with the decline in house prices.

6 CONCLUSION

This article assesses house price developments on the basis of two widely used approaches. The first approach is based on a structural model of the housing market which combines

13 See J. Pagés and L. Maza, "Analysis of house prices in Spain", Banco de España Working Paper No 0307, 2003, and J. Ayuso and F. Restoy, "House prices and rents: an equilibrium asset pricing approach", Banco de España Working Paper No 0304, 2003.

14 In the case of France, see for example A.-J. Bessone, B. Heitz and J. Boissinot, "Are we seeing a bubble on the French housing market", Conjoncture in France, March 2005, and G. Moec, "Is there a risk of a property bubble in France?", Banque de France Bulletin Digest, October 2004.

both demand and supply factors, while the second approach relies on the asset pricing framework for valuing house prices. At the current juncture, it would appear that the dynamism of residential property prices may be attributable to a combination of strong housing demand – partly reflecting the very favourable financing conditions enjoyed by households when taking out a mortgage – and a gradual response on the supply side.

The current situation in the euro area housing market remains subject to several risks. Euro area house price valuation measures continue to be above their historical averages, which, bearing in mind all the caveats attached to this approach, can be seen as a tentative sign of a growing risk of overvaluation in the euro area housing market. In particular, some regions of the euro area might have experienced unsustainable residential property price developments of late. This calls for continued vigilance, in particular in an environment in which the dynamism of house prices has been accompanied by a strong increase in housing loans.

Finally, a thorough assessment of the housing market is dependent on the quality and availability of the relevant data. In this respect, significant improvements are still necessary with particular regard to data frequency, timeliness and quality.