



End of the crisis in the housing markets ?

An international survey

V. Baugnet
P. Butzen
S. Cheliout
W. Melyn
Q. Wibaut

Introduction

Events in recent years have once again demonstrated the importance of developments on the housing markets, both for the economy as a whole and for financial stability.

From the mid-1990s, dynamic housing markets were a significant factor supporting sustained economic growth in most of the advanced economies. The low level of interest rates, financial innovations, flexible credit conditions, sustained growth of disposable incomes, and demographic factors encouraged demand for housing and led to booming house prices and residential investment. Wealth effects combined, in some countries, with practices such as mortgage equity withdrawal also stimulated private consumption expenditure. However, at the same time, the household debt ratio reached unprecedented heights in some countries, making households extremely vulnerable to negative shocks.

House prices surged in the middle of the last decade. The problems which were already in evidence by 2006 in the subprime segment of the US housing market triggered an economic and financial crisis which plunged the global economy into the most serious recession since the end of World War II. The residential property bubbles also burst in other countries.

In some countries, the housing markets seem to have bottomed out, and a number of indicators even suggest a hesitant recovery. Conversely, in other countries, prices are still falling and the correction of the excesses accumulated during the expansion phase continues to weigh heavily on economic growth. The reduction in the heavy debt level of households and the continuing decline in house prices are seriously inhibiting the recovery of domestic demand. Countries where the construction sector had become disproportionately large before the crisis now also have to contend with the fundamental restructuring of their economy.

Against that backdrop, the question is to what extent the house price correction is now over. To answer that, this article uses some simple benchmarks to examine the degree to which those prices are under- or overvalued. It concentrates mainly on the situation in the United States, the United Kingdom and a number of euro area countries, including Belgium. In that regard, in view of the sustained rise in house prices in the run-up to the crisis, the limited correction at the beginning of 2009, and the rapid return to positive growth, it seems that house prices are still overvalued to a certain extent in Belgium. However, as these simple valuation methods have their limitations, the results must be interpreted with caution, and preferably in combination with a detailed analysis of the factors specific to the various countries. Moreover, a number of risk factors persist and could jeopardise what is still a fragile recovery.

This article is structured as follows. Section 1 analyses the characteristics of the latest house price and housing investment cycle. Section 2 highlights the factors which caused the rise over the past decade, some of the factors being global and others specific to particular countries. Section 3 uses a number of indicators to measure the degree of under- or overvaluation of house prices. Section 4 examines the risk factors confronting the housing markets.

1. Trends in house prices and housing investment

In the advanced countries, house prices⁽¹⁾ tend to rise over a long period, the main reasons being growth of demand for housing due to the expansion of the population and the increase in real purchasing power, ever scarcer building land, building regulations and improvements to housing quality. However, there are numerous cyclical fluctuations around this long-term trend. The last cycle began in the mid-1990s. In a number of countries, house prices

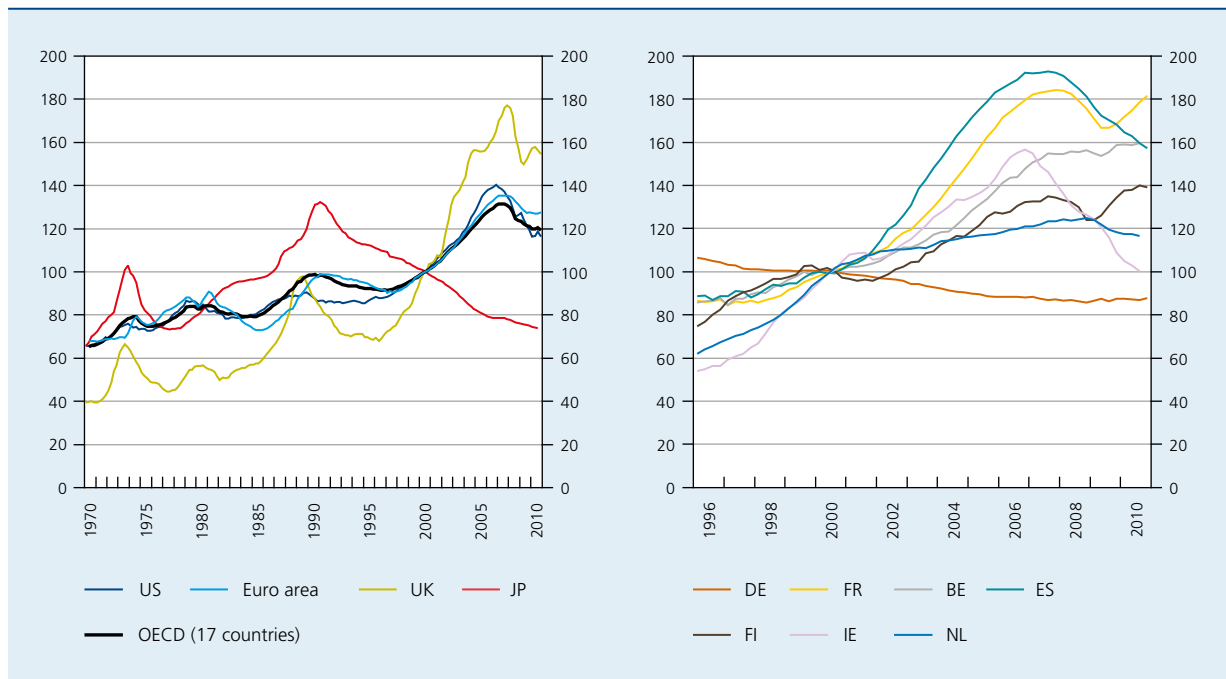
(1) The house price statistics analysed in this report come from the OECD. They are nominal house prices deflated by the private consumption deflator from the national accounts, so as to neutralise the influence of the movement in the general price level. From an economic angle, real house prices have the advantage of making it easy to establish a link with other real economic variables such as investment in housing.

first soared to unprecedented heights, then underwent a sharp downward correction from 2007 onwards.

In the OECD countries, this latest upward phase differs in several respects from the average cycle seen in those countries over the past few decades:

- it extended over a good eleven years (from late 1996 to the end of the first quarter of 2007), whereas the average length of a complete cycle was 6 ½ years, with 3 ½ years in the upward phase.
- the scale of the rise was exceptional. In the past, house prices have risen by 15% on average. During 1996-2007, however, they climbed by 44%. The situation varied largely from one country to another, the extremes being Japan (a 28% fall) and Ireland (a 175% rise). Apart from Ireland, the cumulative increase was very substantial in the United Kingdom, Spain and France, where prices more than doubled. At the same time, Belgium, Finland, the United States and the Netherlands – where the acceleration phase had set in earlier – also recorded sustained increases in real house prices, but to a lesser extent than in the first four above-mentioned countries;
- the increase in house prices was more widespread and synchronised than in previous cycles. Prices rose sharply in more than 75% of the OECD countries, with the

CHART 1 REAL HOUSE PRICES⁽¹⁾
(quarterly data; indices 2000 = 100)



Source: OECD.

(1) Nominal house prices deflated by the private consumption deflator.

notable exception of Germany and Japan. During previous upward phases, that figure had tended to be only between 30 and 50 %;

- given the exceptional duration of the latest upward phase, the co-movement between real house prices and the economic cycle, which was a feature of previous cycles, was interrupted: in particular, house prices continued to gain momentum despite the slackening pace of economic growth in the early 2000s.

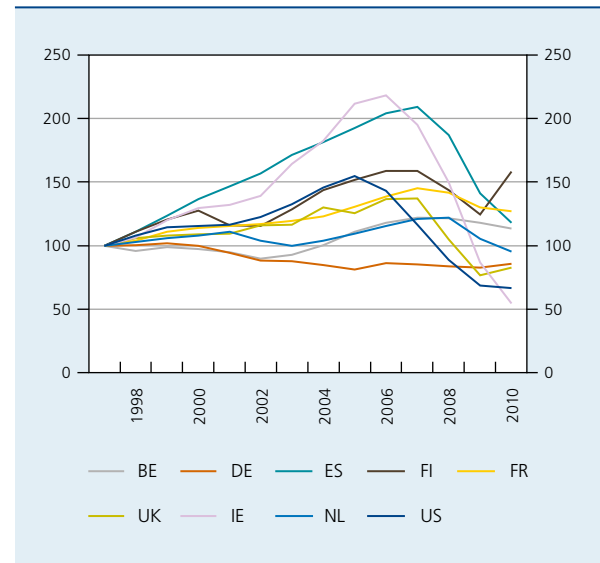
During the course of the year 2007, the downward phase in the current cycle was triggered by the increase in interest rates and the financial and economic crisis. Since then, house prices have fallen by 9 % on average in the advanced countries, a sharper decline than in the previous downward phases recorded since the 1970s.

Compared to the preceding upward phase, there has been less synchronisation between countries. In the United States, prices had already peaked in the fourth quarter of 2006. House sales had actually already begun to decline during 2005. The rise in interest rates is a significant explanatory factor, as the Federal Reserve increased its key policy rates by a total of 425 basis points between June 2004 and June 2006. Long-term interest rates also rose, though less steeply. Thus, average rates on mortgage loan agreements increased by around 100 basis points during this period. The slowdown in economic growth in the United States from the second half of 2004 also played a role. Partly as a result of these factors, arrears on mortgage payments, and more specifically on subprime mortgage loans had already begun to increase during 2005. This development was one of the reasons behind the financial crisis which erupted during the summer of 2007. In most other countries, the housing market correction did not begin until 2007 or 2008.

Prices thus entered a downward adjustment phase which varied in severity from one country to another. The cumulative price fall has exceeded 35 % in Ireland, with figures of between 15 and 20 % in the United States, the United Kingdom and Spain. In France, the Netherlands and Finland, the cumulative price reduction was between 5 and 10 %. Finally, it is notable that in Belgium the real price correction was the shortest in time (2 consecutive quarters) and the smallest (–1.8 %). The developments recorded in the last few quarters further highlight the heterogeneous response of the housing markets after the crisis. Some countries – such as France, Finland and Belgium – were already in a stabilisation or recovery phase during 2009 or 2010. In other countries, the price correction was still ongoing during the last quarter of 2010.

CHART 2 HOUSING INVESTMENT

(annual data, indices 1997 = 100, in volume)



Source: OECD.

It is interesting that the largest and most persistent adjustments today concern precisely some of the countries which had seen the most sustained price rises during the pre-crisis period, namely Spain and Ireland. Although a strong rise in house prices may in some cases be justified by the course of economic fundamentals, the increases recorded tend to suggest excessive developments which subsequently require greater and more permanent adjustment.

A positive link is generally seen between the trend in house prices and investment in housing. The choice between buying an existing property or building a new home involves what is generally known as Tobin's Q. This ratio compares prices on the secondary market with the cost of new building. An increase in the market value of existing properties compared to construction costs encourages investment in new buildings. Thus, housing investment also expanded strongly in most of the advanced countries in the decade from 2000. In Spain and Ireland, where the price rise was particularly steep, the expansion of housing investment began sooner and was extremely vigorous. In those two countries, the weight of the construction sector in total value added increased very rapidly. Elsewhere, and especially in the United Kingdom, France, Belgium and the Netherlands, housing investment expanded more modestly in comparison with the surge in prices. That indicates that there may be differences between countries in the sensitivity (or elasticity) of the housing supply to secondary market prices.

The OECD recently estimated the long-term price elasticity for a number of countries. According to the estimates, the supply of new housing is relatively more flexible in the United States, Finland and Ireland, whereas it is more rigid in continental European countries (such as Belgium) and the United Kingdom. The sensitivity of supply is considerably influenced by government policy, such as urban planning and land use regulations. A positive shock affecting demand for housing will vary in its macroeconomic effects according to the degree of supply elasticity. When the activity of the construction sector reacts promptly and/or strongly to the initial demand shock, the pressure on prices is tempered, but that tends to amplify the movements in economic activity. When the supply of new housing is slow and/or weak in its response to rising demand, that tends to exacerbate the stress on prices, making them more volatile, with potentially negative implications for the affordability of housing.

The strong growth of housing investment was followed by a decline which set in sooner in the United States and Ireland than in the other countries. The crisis triggered a widespread slump in housing investment, but the scale of the decline varied between countries; it was much more severe in the countries where housing investment had risen the most, namely Ireland and Spain, and was also considerable in the United States and the United Kingdom. The adjustment in the United States, Ireland and the United Kingdom reduced housing investment to a level below that prevailing before the last housing cycle.

In a number of advanced countries, governments introduced measures to curb the collapse of the housing market, as part of the recovery plans following the economic and financial crisis. Some of these measures consisted of support for construction, via a reduction in VAT or the acceleration of social housing programmes; other measures were designed to assist households burdened by debt, such as the possibility of deferring interest payments on their mortgage loan in order to avoid default or an increase in the funds made available for reduced-rate loans. Some countries gradually withdrew these measures as the economic climate improved.

2. Principal determinants of house prices

2.1 Theoretical considerations

In view of the mentioned short-term rigidity of supply, house prices tend to be determined more by demand in the short term, and even in the medium term. The

number of households is the most obvious factor behind fluctuations in demand for housing. That in turn is influenced by other demographic variables, such as household size and migratory flows.

Households have a choice between renting or buying their home. That choice is made by comparing the user cost of purchasing and the rent. Investors, for whom the rent constitutes a return, weigh up the same options. The user cost comprises the interest charges on the value of the property, the cost of maintaining the property (including taxes), and the gains or losses to be made on resale of the property. If the user cost of a house is significantly larger than the rent on an equivalent property, renting is preferable. House prices and rents obviously have a very great influence on this equation. The price-to-rent ratio is therefore a proxy for this balance, which has a stabilising effect on the two markets. The ratio is often used to measure the degree of under- or overvaluation of house prices (see below). However, various factors limit the substitution between the two types of housing, and the significance of this price-stabilising mechanism:

- residential property transaction costs are often very high. In that regard, in a very flexible labour market, households may prefer to rent rather than buy;
- the tax treatment of house purchases is generally very favourable;
- the supply of (good-quality) houses for rent is often limited;
- in the case of renting, the time horizon is much shorter. Households therefore do not need to have an exact idea of their future position (over 10 to 20 years) in terms of disposable income, place of residence, household size, etc. That advantage is therefore all the more significant the greater the macroeconomic uncertainty;
- finally, in many cultures, even if the overall cost is the same, households prefer to own their home because of the associated social status or the freedom to do as they wish with the property.

Thus, rent and price are not the only two factors influencing a household's decision whether to buy or rent a home. The other variables involved in that decision are:

- the household's disposable income⁽¹⁾: a household must have the necessary financial resources to acquire a home. The ratio between house prices and disposable income, known in the literature as crude affordability, is often used to estimate the affordability of housing and

(1) Since the decision to buy concerns a long horizon, it is not current disposable income that matters, but permanent income, i.e. the average disposable income expected over the period of ownership of the property (or at least over the mortgage loan repayment period). Since the permanent income is not observable, current disposable income is generally used. But in that case, it is necessary to bear in mind that both its expected increase and its variance play a key role in shaping demand.

hence the degree of under- or overvaluation of house prices (see below);

- the interest rate⁽¹⁾, given that, in most cases, a loan is contracted in order to finance the purchase of a home. This variable refers more specifically to the cost of repaying a loan and, combined with the house price and disposable income, it gives an idea of the interest-adjusted-affordability;
- interest charges make up only part of the cost entailed in investing in housing. It is also necessary to take account of other costs, such as administrative expenses and the cost of maintaining the home, as well as the tax treatment of house purchases. These costs or tax advantages have to be compared with those associated with other types of real and financial investment;
- as already stated, the fact that a residential property is a real asset implies that its expected future yield may be a central factor affecting the decision to buy or keep the property. The expected variations in house prices therefore play a crucial role in demand. They may trigger further price rises, and create a process which ultimately generates speculative bubbles. In that regard, a number of studies have shown that households' expectations are adaptive and in line with past trends in prices. Thus, while an increase in real prices may initially be justified by the fundamentals (interest rates, income, etc.), its continuation is often based on the expectation that the trend will be maintained. The current price rise therefore causes the future increase. The situation in Germany and Japan illustrates this mechanism in reverse. There, prices are expected to fall. The expected movement in house prices is one of the main reasons why the real price of houses may deviate from its fundamental value for a lengthy period, in either direction. An upward trend may persist until an external factor triggers a sometimes dramatic fall in prices, going hand in hand with the contraction of demand for housing and the credit supply;
- the expectations mechanism may be reinforced by its effect on bank credit, if, in a context of constantly rising prices, the banks also consider that they only face a small financial risk in the event of a repayment default. That may drive banks to relax their lending conditions (loan-to-value ratio, ratio between repayments and disposable income, duration of the loan, etc.). The functioning of credit markets is therefore a major factor influencing demand for housing.

(1) In this connection, the expected real interest rate over the term of the loan should ideally be taken as the basis, but since there is no reliable information available on long-term inflation expectations, it is common to use the nominal mortgage interest rates prevailing, adjusted for the change in the consumer price index over the past year.

2.2 Global factors

The worldwide increase in house prices from the mid-1990s onwards was due to both global factors and to country-specific factors. The importance of these two types of factors varies from one country to another.

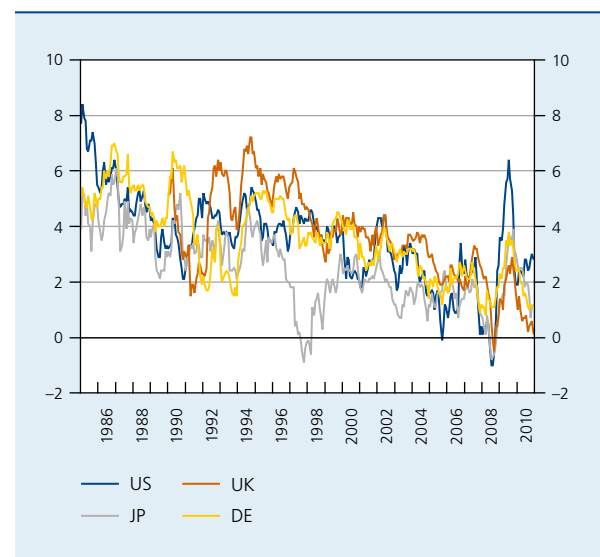
2.2.1 Interest rates

The fall in interest rates was one of the main factors underpinning the residential property market. This trend occurred in the context of the decline in inflation which began after the 1970s and was attributable to the greater commitment of monetary policy to maintain price stability, a more prudent fiscal policy and the liberalisation of the product and labour markets, which led to keener competition. The moderation of inflation and attenuation of its volatility contributed to a marked reduction in both nominal and real interest rates over that period.

The steady decline in real interest rates is also due to excess savings at global level: the "saving glut". Following the Asia crisis of 1997-1998, the accumulation of surplus savings by the emerging countries, especially China, and by the oil-exporting countries since the rise in oil prices during the 2000s, also depressed global interest rates.

The downward trend in interest rates at global level was combined with a process of convergence in nominal interest rates at European level which mainly benefited the

CHART 3 REAL LONG-TERM INTEREST RATES⁽¹⁾
(monthly data, percentages)



Source: Thomson Reuters Datastream.

(1) Yield on 10-year government bonds, deflated by the CPI.

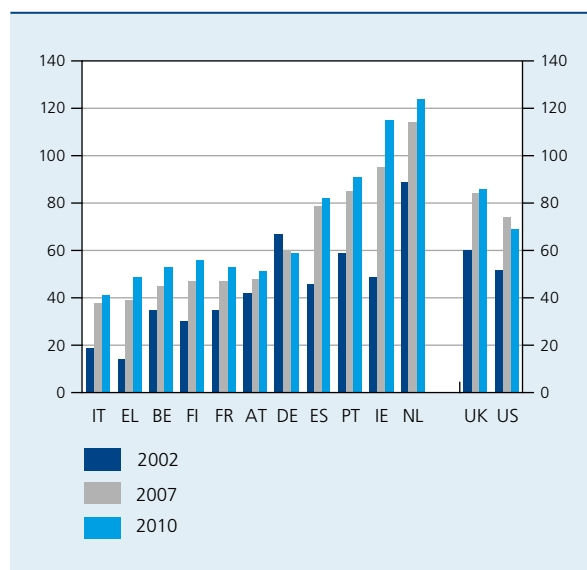
southern European countries. The announcement of the introduction of the euro encouraged the convergence of nominal long-term interest rates, which was almost totally achieved by 1998 in the case of the countries which were to adopt the euro in 1999. Taking account of inflation differentials, many countries which had previously recorded higher real long-term interest rates than Germany saw the real rate fall below the German level. These differentials persisted until the financial crisis erupted in 2008. In those countries, the exceptionally low real interest rates generally fuelled the growth differential by supporting domestic demand and the rise in asset prices, particularly in the real estate sector.

2.2.2 Deregulation and financial innovation

The deregulation of the financial markets from the early 1980s also contributed to the expansion of the housing markets. The new products were a key factor here. Some developments on the credit markets were particularly significant in boosting the borrowing capacity of households, and therefore increasing their ability to buy, thus compensating for the price increases. Examples include :

- extension of the loan term, up to 50 years in some countries such as France, Spain and the United Kingdom ;
- increase in the loan-to-value ratio, which often exceeded the usual limit of 80 % in many countries. In the Netherlands and the United Kingdom, contracts were frequently concluded with a loan-to-value ratio of over 100 % ;
- wider use of variable-rate mortgages. With this type of loan, the initial advantage must be weighed up against the risk of a rise in rates ;
- development of schemes for the repayment of the principal in a lump sum at the end of the loan period. Originally, these schemes were linked to an investment product intended to permit the ultimate repayment of the principal (as in the UK and the Netherlands). More recently, identical schemes but without any link to an investment product have also emerged (in Ireland and the United States) ;
- development of mortgage equity withdrawal (mainly in the English-speaking countries) enabled households to relax their financing constraints by making flexible use of their home as collateral : by mortgaging their home in whole or in part, they could obtain cheap credit to finance their consumption ;
- finally, and above all, the development of securitisation and the originate-to-distribute model permitted the expansion of lending, especially in the United States. The originate-to-distribute model may have reduced the incentives for lenders to be diligent in performing their central function in the lending process : selection of the best risks and monitoring of the debtors. In the other

CHART 4 LONG-TERM DEBT⁽¹⁾ OF HOUSEHOLDS
(in % of GDP)



Sources : Federal Reserve, EC, ECB.

(1) Outstanding amount in the 4th quarter of each year, except for 2010 (where the figures concern the 3rd quarter). For the United States: mortgage debt rather than total long-term debt.

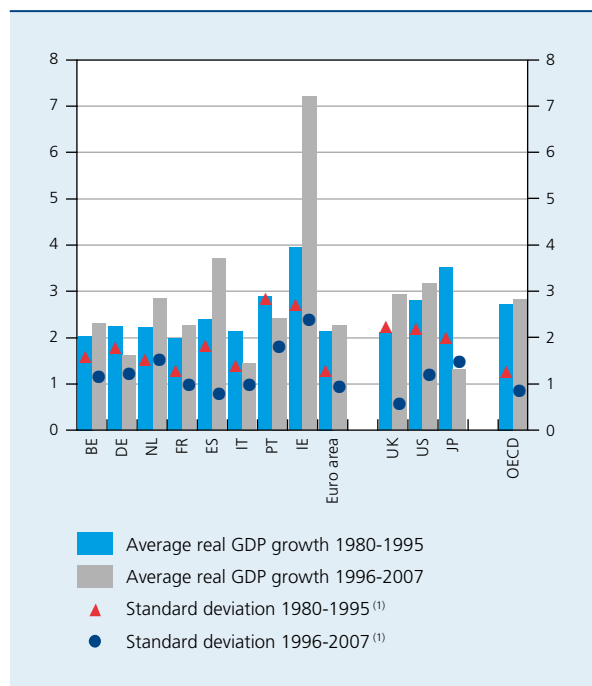
OECD countries, the percentage of securitised mortgage loans was smaller, but with considerable variations between countries. However, in Europe, owing to the more stringent prudential framework, securitisation had a less detrimental effect on the incentives for banks.

An easing of lending conditions combined with very low interest rates has often led to a significant rise in house prices and long-term debts of households. The expansion of this debt (consisting mostly of mortgage debt) has been very marked in most of the OECD countries in recent years. At the end of 2010, the long-term debt of households exceeded 80 % of GDP in Spain, Portugal, Ireland and the Netherlands, and its growth between 2002 and 2010 was often considerable in these countries. That debt expansion also increased the vulnerability of indebted households to shocks affecting their disposable income or interest rates, depending on the type of mortgage loan and the characteristics of the household. In some countries, easy access to credit also led to an increase in the proportion of owner occupiers, by enabling lower-income groups to borrow.

2.2.3 Disposable income

Between the mid-1990s and 2007, most of the developed economies experienced a period of "great moderation", in which real average GDP growth gathered pace and its

CHART 5 GROWTH AND VOLATILITY OF ECONOMIC ACTIVITY
(percentage annual change, unless otherwise stated)



Source: OECD.
(1) Percentage points.

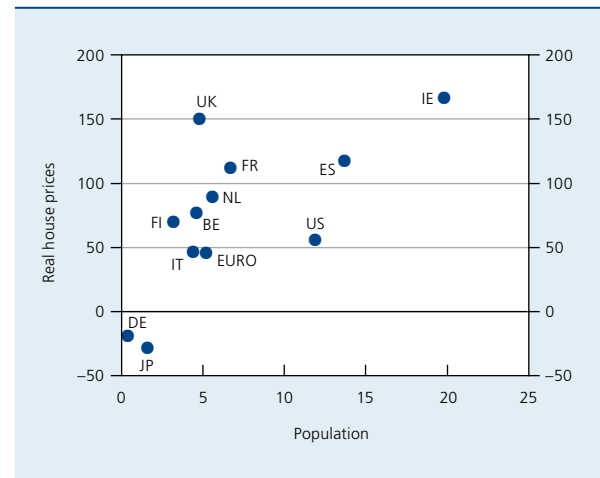
volatility declined, compared to the period 1980-1995. Households revised their income expectations upwards and downgraded their expectations regarding economic uncertainty, leading to an increase in their permanent income. This factor bolstered demand for housing in most countries.

2.2.4 Demography

Demography has been another common factor behind the movement in house prices in most of the developed countries. Population growth, not least as a result of immigration, has shown a positive correlation with the rise in real prices in the OECD countries. On the contrary, Japan and Germany, where population growth was very low, have recorded a decline in real house prices. In the case of Ireland, the strong population growth was combined with a structural effect caused by the age pyramid, since the proportion of the population reaching the age to set up a household increased sharply at the beginning of the 2000s.

The number of households also increased among the OECD countries during the period considered, because average household size has fallen as a result of the decline

CHART 6 REAL HOUSE PRICES AND POPULATION
(cumulative changes during the period 1996-2007, in %)



Sources: OECD, World Bank.

in the number of children per family, the increase in the proportion of single person households, and the increased independence of elderly persons.

Demand for housing by non-residents has also played a growing role in some European countries, such as France and Spain.

2.3 Country-specific factors

Regarding the latest upward phase in house prices, apart from the global factors listed above, there are also a number of national factors that should be mentioned. Furthermore, the impact of global factors has differed from one country to another. These factors are listed below for a selection of countries.

UNITED STATES

In the United States, the following factors have contributed to the price rise of recent years:

- in terms of both real disposable income per capita and demographics, the United States recorded a larger increase than most other advanced countries: during the period between 1996 and 2007, annual growth averaged 2.3% and 1% respectively (compared to less than 2% and 0.4% respectively in the euro area, for example);
- a number of complementary measures were taken to stimulate home ownership: the capital gains made on the sale of a house were tax exempt under certain

conditions from 1997 onwards, and the development of the non-conforming mortgage sector (Alt-A and subprime loans) was encouraged;

- after the bursting of the dotcom bubble in the year 2000, the Federal Reserve made drastic cuts in the federal funds target rate, slashing it from 6.5% in December 2000 to 1% in June 2003, a monetary easing that was more pronounced than in other advanced countries;
- borrowing conditions on the mortgage market were relaxed considerably from 2003 onwards, more so than in other countries. This was due in particular to the following factors: as mentioned above, the non-conforming sector gained in importance, criteria concerning income and collateral were eased (lenders focused more on the increase in the underlying value of the mortgaged property), a series of new practices (teaser rates – interest rates which are low at first but then increase considerably), and interest-only loans (in which during the initial phase of the loan only interest is paid) made loans more affordable, second mortgages proliferated, and there was a sharp increase in the loan-to-value ratio on new loans;
- strong speculative demand (primarily in large towns and fashionable resorts). It is estimated that this accounted for 15% of total demand for housing, taking all purchases together in 2004, compared to a long-term average of 5%.

However, the rise in house prices was curbed by the substantial, rapid increase in housing investment (high price elasticity) so that, overall, the house price rise in the United States during the period 1996 to 2006 was moderate in comparison with the rest of the world.

GERMANY

Germany is an atypical case. House prices there have tended to decline steadily over the past fifteen years, in sharp contrast with the increases elsewhere before 2007 or 2008. At the same time, Germany has undergone a structural crisis in the building industry: since the mid-1990s, housing investment had been in constant decline, and only recently became stable. There are several factors which may account for these developments.

On the supply side, German reunification initially led to an acceleration in housing investment, leading to surplus capacity (especially in the eastern Länder) from the mid-1990s onwards. There followed a lengthy process of adjustment which was reflected in the weakness of the construction sector.

On the demand side, in comparison with other European countries, there were few innovations in mortgage products, the only major change being the extension of the loan repayment period to 30 years. Changes in the disposable income of German households may also be part of the explanation for the sluggishness of the housing market. During the decade preceding the crisis, as a result of the slowing pace of employment growth, household disposable income increased more slowly than in other European economies. Also, the percentage of home owners in Germany is particularly low, whereas the rental market accounts for a substantial proportion of residential property, making it more attractive and tending to moderate the demand for properties to buy. Finally, in regard to taxation, while a tax allowance for first-time buyers (*Eigenheimzulage*) was introduced in 2004, it was withdrawn altogether in 2006. Also, in 2007, the general increase in the VAT rate by 3% to 19% drove up the cost of new buildings. Finally, the low rate of population growth is another factor which has depressed demand for housing.

SPAIN

Until 2007, the Spanish housing market boom was one of the most notable in the euro area. One of the main explanatory factors was the very strong surge in household disposable income, as a result of economic catching-up after the country joined the European Union. Income growth was also supported by vigorous expansion of employment, encouraged by labour market reforms. In addition, interest rates there fell very sharply, considerably improving access to credit. In fact, Spain clearly benefited from the convergence of its nominal interest rates in anticipation of its accession to EMU, and – as a result of its inflation gap in relation to the euro area average – it enjoyed a decline in real interest rates even after the introduction of the euro. The decline in interest rates probably played a non-negligible role in the increase in household debt levels, thus fuelling the expansion of the housing market. Moreover, the change in the mortgage landscape brought about by the introduction of product innovations (for example, the possibility of extending the loan term to 50 years), the deregulation of the banking sector and a tax regime which encouraged the purchase of houses (such as the various tax allowances for buyers, and a special lower VAT rate of 7% on the purchase of new housing) facilitated and stimulated home ownership. Finally, the demographic factor was particularly important in Spain, where European non-residents and the influx of immigrants have provided additional support for demand.

FRANCE

Up to 2007, the French housing market was among the most flourishing in the euro area. Demand was underpinned in particular by the dynamism of incomes and employment, in line with the implementation of policies targeting the labour market. Moreover, the home ownership rate, which was relatively low, has tended to rise and has boosted demand for housing. Demand from European non-residents also drove up prices, though not on a comparable scale to what happened in Spain. As in other countries, a number of innovations appeared on the mortgage market, such as the possibility of extending the term of the loan to 50 years, and the increased use of variable-rate loans, easing credit conditions. Moreover, financing sources subsidised by the State supported buyers' demand for housing, e.g. via the *Prêt à Taux Zéro* (zero-rate loan) already introduced in 1995 and then relaunched in 2005, making home ownership easier for first-time buyers with modest incomes. In 2007, just before the end of the boom, a tax credit on loan interest was introduced.

IRELAND

During the upward phase in the latest property cycle, Ireland appeared to be an outsider, with prices almost tripling since 1996 despite substantial investment in housing. The steep increase in prices was due to strong demand which outstripped that in the rest of the euro area, one of the root causes being demographic trends: strong growth of a young population, net immigration, and changes associated with lifestyles (break-up of the nuclear family). In addition, from the 1990s onwards, a twofold catching-up effect occurred, not only in regard to the disposable income of households, but also directly in respect of housing prices which were relatively lower than those of Ireland's European neighbours. Moreover, the tax rules favoured the acquisition of houses. The financing constraints facing households were eased, and that may have stimulated demand for mortgage loans. On the one hand, the process of convergence with the prospect of Ireland's entry into EMU led to a fall in nominal and real interest rates, making it substantially cheaper to borrow. Also, the mortgage loan market was liberalised and deregulated during the 1980s and 1990s. However, while such innovations were also present on other European markets, in Ireland the aggressive marketing of mortgages encouraged record levels of private debt. The business model of the Irish banking sector in fact differs from other European models in its over-exposure to the residential housing market. The fact that the high degree of financial openness in Ireland attracts a large volume of capital, plus recourse to international wholesale funding, enabled the financial sector to access a pool of abundant liquidity

and thus expand the supply of credit. The financial sector consequently came to represent an exceptionally large proportion of the Irish economy as a whole.

NETHERLANDS

The Netherlands initially saw a period of rapidly rising house prices in the second half of the 1990s, followed by a more moderate rise during the 2000s. During the earlier period, the expansion of the housing market had been accompanied by strong job creation and a sustained growth of household disposable incomes. During the whole period, the price boom was also encouraged by the growing competition between mortgage lenders, and by developments on this market (such as the increased recourse to variable-rate loans). In addition, the loan-to-value ratio is particularly high in the Netherlands (approaching 100%) compared to other euro area countries (where the average was 79% in 2007). An accommodating tax regime, notably via a tax credit on loan interest, also acted as an incentive to taking on mortgage debts. All these factors may have contributed to the accumulation of record levels of mortgage debt by households in the Netherlands compared to their neighbours in the euro area. As in France, the increase in the particularly low percentage of owner-occupiers compared to other countries (such as Belgium, Spain, and Ireland) may have fuelled the rise in house prices compared to rents.

UNITED KINGDOM

The specific features of the United Kingdom's housing market concern both supply and demand. First, the supply of housing is particularly price inelastic, the main reason being the tight control on supply by strict land use regulations and urban planning rules. The fact that these rules are passed mainly at local level explains their restrictive character, since local residents may have an interest in limiting the increased density of housing in their district. In 2004, a parliamentary commission of inquiry published a report on this subject (the Barker Report) which makes recommendations on increasing the supply of new housing and, more generally, making the housing market more flexible.

While supply was limited, a number of specific factors helped to support demand for housing and accentuated the price rises. As in the United States, the disposable income of British households grew more strongly than in most other advanced countries. Moreover, households' access to credit was made particularly easy by financial deregulation, which was both early and very far-reaching, and by fierce competition between credit institutions, leading to very flexible credit conditions.

This limited supply of housing coupled with demand strongly buttressed by an aggressive credit supply made the British situation similar to that in the Netherlands. In both countries, house price fluctuations exceeded the average in the other advanced economies.

BELGIUM

In Belgium, some specific factors contributed to the rise in house prices during the decade preceding the economic crisis, and more particularly during the period 2004-2007.

First, changes in residential property taxes tended to favour access to ownership and stimulate the number of transactions. For instance, registration fees were reduced in Flanders and Brussels in 2002 and 2003⁽¹⁾; in Flanders, the cut in registration fees was accompanied by fee portability, encouraging (young) households to invest relatively early in their first property, even if they later switch to a more expensive property as their income increases sufficiently to make it affordable. Moreover, the fact that cadastral income on existing properties is hardly affected by changes in the market tends to reinforce the bias in favour of existing dwellings rather than new.

Second, the tax amnesty (DLU/EBA) applied in 2005 encouraged Belgian households to repatriate funds, and part of that was certainly reinvested in residential property. That factor is behind the marked rise in personal contributions towards house purchases since 2005.

Third, the Federal State and the Regions introduced tax incentives to improve the energy efficiency of residential buildings. These measures had the effect of increasing the amounts invested by households in renovating their homes. In 2008 and 2009, when house building recorded a marked decline, which persisted in 2010, albeit to a smaller extent, the amount invested in renovation continued to increase at a sustained rate. Renovation enhances the quality of the properties, boosting their resale value.

3. Measures for the assessment of house prices

3.1 General

The empirical literature refers to a number of methods of linking changes in house prices to changes in the fundamental determinants, permitting an assessment of the residential property market valuation.

The first approach compares the movement in prices with the change in disposable income (price-to-income), so as to reveal the affordability. This yardstick can be adjusted to take account of the movement in interest rates (and more specifically, mortgage interest rates), since they have a big influence on the repayment cost and hence on the borrowing capacity of individuals. This is the concept of interest-adjusted-affordability. In addition, the influence of demographic factors – population growth exerts upward pressure on house prices if the supply is constant – can be introduced into such a yardstick, which will then cover the main macroeconomic determinants of demand for housing.

The second approach compares house prices with rents (price-to-rent), to gauge how a person wanting a home decides between house purchase and rental.

In the long term, these ratios (price-to-income, price-to-rent, interest-adjusted-affordability) tend to revert to their equilibrium value, while in the short (and medium) term they may deviate from it to varying degrees. Large deviations from the equilibrium value of these ratios therefore point to under- or overvaluation of house prices. Thus, if the price and/or repayment cost associated with the house increases relative to households' disposable income, it is much harder for them to buy a property, their demand declines, and that drives prices down, causing the ratio to revert to its equilibrium value. Similarly, if house prices rise much faster than rents, it becomes more attractive for potential buyers to rent, driving up rents while prices on the secondary market tend to fall.

The most important advantage of these methods lies mainly in the simplicity of calculation and in the fact that they are based on macroeconomic data published in the relatively short term, available for a large number of countries. International institutions (OECD, ECB, IMF) also refer frequently to the concepts of price-to-income and price-to-rent in their analysis of the housing markets.

But these tools also suffer from many defects, so that the findings must be interpreted with caution. First, they take no account of some key determinants of house prices, and approximate values often have to be used for others: this applies to taxation (for example, the deductibility of borrowing costs, which supports the affordability of housing), the characteristics of mortgage contracts (a longer

(1) In Wallonia, registration fees were not reduced until 2009.

loan term or a higher loan-to-value ratio increases affordability), rents⁽¹⁾, etc.

Second, the concept of the equilibrium value, used to measure the scale of the under- or overvaluation, is itself difficult to establish. A long-term average is generally used for this purpose, but on the one hand, that average value depends on the period considered, and on the other, there is no guarantee that the equilibrium value will be constant over time. That applies in particular if there are changes over time in the tax rules, the operation of the mortgage markets (loan-to-value ratio, maturity, etc.), or the preferences of the parties involved. As already mentioned, the developments on the mortgage markets over the past decade led, among other things, to an extension of the loan term and an increase in the loan-to-value ratio. For example⁽²⁾, the average loan term in Belgium was traditionally estimated at 20 years, but data from the Central Individual Credit Register, which records all new contracts for mortgage loans granted to resident households, broken down by their term and their average amount, suggest that the term is increasing. Thus, in 2007, the average duration of mortgage contracts for a sum between € 100 000 and € 150 000 was estimated at 266 months, or 22.2 years, reflecting

an increase in the average term during the period preceding the crisis. Thereafter, the average term seems to have stopped increasing, standing at just under 22 years in 2010.

Finally, these methods supply *ex-post* valuation indicators, but do not show whether any deviations may give rise to substantial corrections in the near future.

In view of the above, it is better to draw lessons from these methods to assess the change in the affordability of housing rather than the level of affordability. Comparisons between countries must also adopt that approach.

- (1) More specifically, as regards the measure which links the movement in prices to the movement in rents, there is an important conceptual difference in that the house price (in the numerator) is calculated on the basis of new transactions on the secondary market and therefore reflects market conditions, while rents (in the denominator) correspond – particularly in Belgium – to the rent component of the HICP, and usually reflect the movement in rents under existing rather than new leases. Existing rents are generally linked to the health index and are subject to various legal rules limiting increases during a multi-annual contract.
- (2) Regarding the loan-to-value ratio, the pattern in Belgium seems to have differed from that in other countries, as that ratio has declined over the past 15 years. Whereas the loan-to-value ratio hovered around 80 % from 1996 to 2004, it began to fall rapidly from 2005, dropping to 65 % in the first half of 2010. In other words, the personal contribution towards a house purchase increased from around 20 % in the mid-2000s to 35 % in recent years. One of the reasons often cited to account for this trend is the repatriation of funds under the tax amnesty (DLU/EBA) implemented in 2005, part of those funds having been reinvested in residential property. It must also be stressed that the developments discussed above were seen on average. The increase in the average personal contribution over the past 15 years does not exclude the fact that for an increasing amount of households a home has become less affordable.

TABLE 1 MEASURES OF HOUSE PRICE OVERVALUATION: INTERNATIONAL COMPARISON
(in % of deviation from the long-term average⁽¹⁾; average for the 3rd and 4th quarters of 2010)

	ECB				OECD		NBB
	Ratio between house price and disposable income	Ratio adjusted for the interest rate and population growth	Ratio between house price and rent	Ratio adjusted for the interest rate	Ratio between house price and disposable income	Ratio between house price and rent	Ratio between house price and disposable income adjusted for the interest rate and population growth
United Kingdom	20	22	-17	-8	29	42	-2
France	47	1	48	13	36	42	13
Belgium	-	-	-	-	48	66	15
Spain	28	1	22	14	25	35	-12
Ireland	-	-	-	-	7	22	-30
Netherlands	21	7	25	6	41	38	6
Finland	4	6	22	10	3	39	-15
Italy	20	13	10	9	18	7	-9
United States	-	-	-	-	-8	7	-25
Germany	-28	-1	-13	-2	-24	-21	-
Japan	-	-	-	-	-36	-36	-

Sources: ECB (2011), OECD, NBB (own calculations).

(1) 1980-2010 average for the ECB and OECD indicators; 1995-2010 average for the NBB indicator.

3.2 International comparison

Recently, the OECD and the ECB have both assessed the housing markets in a number of countries in the light of the affordability indicators. The Bank has made similar calculations on the basis of an interest-adjusted-affordability model⁽¹⁾. As table 1 shows, the findings may vary substantially according to the indicators. Compared to their long-term value, these results indicate that, for Belgium on average, in the third and fourth quarters of 2010, house prices were overvalued by between 15 and 66 %, depending on the approach adopted. This demonstrates the degree of uncertainty surrounding these measurements. On the basis of the approaches linking the movement in house prices to disposable incomes or rents, disregarding interest rates, an international comparison shows that Belgium is among the most overvalued European countries (between 48 and 66 %). Prices also seem to be seriously overvalued in France (36 to 48 %), Spain (22 to 35 %) and the Netherlands (21 to 41 %). Conversely, in Germany, Japan and – according to one of the indicators – the United States, prices appear to be below their equilibrium value. The introduction of interest rates into the equation reduces the overvaluation of these prices by about ten percentage points on average in the countries with overvaluation. In Belgium, the overvaluation of residential property would then come down to around 15 %.

In Belgium, it appears that housing became seriously less affordable between 2004 and the third quarter of 2008, mainly on account of the price surge; in September 2008, house prices were almost 25 % overvalued. The affordability of housing then improved rapidly between the end of 2008 and the second quarter of 2009, despite the slower pace of household disposable income growth, as prices on the secondary market increased more slowly and then declined, and interest rates fell sharply. Just under half of the cumulative overvaluation since 2004 was thus reabsorbed. From the second half of 2009, the affordability of housing remained more or less stable, as the rise in prices was offset by the continuing decline in interest rates. However, since the third quarter of 2010, there have been signs of a renewed deterioration in the affordability of housing, owing to the price rebound, while interest rates have begun to increase slightly.

(1) These estimates are based on assumptions of an average maturity of 20 years and a loan-to-value ratio of 80 %. Results are expressed in deviation from the 1995-2010 average.

4. Risk factors

4.1 General risk factors

Despite the price correction which has already taken place, and the gradual consolidation of economic growth in many countries, a number of risk factors at global level could weigh on the housing markets in the short and medium term.

The first is the return to more normal interest rates. In the past decade, interest rates have been very low as a result of various factors already mentioned, such as the highly accommodating monetary policy and excess savings in the emerging Asian economies and the oil-exporting countries. That was accompanied by an increase in the debt level of the non-financial private sector, particularly households, and an accumulation of macroeconomic imbalances in numerous economies. The eruption of the financial crisis led to a renewed easing of monetary conditions at global level. Establishing a new, more balanced growth model at global level will involve, in particular, a return to more normal monetary policies and real interest rates, both short- and long-term. That will naturally have a dampening impact on recourse to mortgages, demand for which is likely to fall, and drive up the cost of repaying variable-rate loans, implying a risk of rising default rates in countries where that type of loan is common.

The second risk factor concerns potential GDP growth, which could prove to be lower than in the previous decade. A decline in potential growth causes a slowdown in disposable income of households and depresses demand for housing. The two main reasons for a reduction in potential growth are as follows:

1. The normalisation of interest rates already mentioned could restrain investment compared to the pre-crisis period. That effect could be reinforced by the essential process of deleveraging, which could limit the supply of credit by financial institutions.
2. If the rise in unemployment triggered by the crisis becomes permanent (hysteresis), that could lead to the destruction of human capital. High and persistent uncertainty on the labour market also applies a direct brake on demand for housing.

Finally, the financial crisis led to a rapid rise in government debt levels in most of the advanced economies. The sustainability of public finances requires speedy correction of budget deficits. That may imply an economic slowdown in the short term, and will probably depress the disposable income of households. However, that risk should not be exaggerated: fiscal consolidation may also

boost household and business confidence, providing support for consumption and investment respectively. In the medium term, this positive effect on aggregate demand (crowding-in) could outstrip the recessive effects of the consolidation.

4.2 Specific risk factors

This section addresses the risk factors specific to the American and Belgian housing markets.

4.2.1 United States

The valuation analysis shows that, if account is taken of a number of fundamental factors, such as disposable income or rents, house prices in the United States are currently quite close to their equilibrium level. Taking account of interest rate levels, house prices are even well below this equilibrium. In those circumstances, the housing sector could be expected to recover. While government measures nurtured a recovery between the spring of 2009 and the spring of 2010, once most of the support measures expired, activity and prices both subsided. Since the financial and economic crisis of 2007-2009 originated on the US housing market and had a serious impact there, the government had taken numerous measures at the time to support that sector⁽¹⁾.

At present, the American housing sector is still not showing signs of a lasting recovery. It is thus one of the few sectors which has not contributed to the current economic revival, whereas in the past it was always one of the engines of recovery. Several important factors are still impeding the recovery today.

First, the stock of unsold houses is currently substantial. One reason is that supply is very elastic to prices in the United States, so that the supply responded (too) sharply to the fluctuation in underlying demand. A BIS simulation shows that, taking account of the changes at the level of certain fundamental data (real per capita disposable income and population), the excess supply during the period 2000-2006 can be estimated at 1.1% of GDP⁽²⁾. Thus, while the stock of unsold houses stood at around 2 million homes in 2000, the figure climbed to over 4 million on more than one occasion in recent years. Expressed in monthly sales, the stock increased from around 4 months to more than 8 months. Apart from this backlog, it is necessary to take account of the homes that are likely to come onto the market shortly. This "shadow inventory" can be calculated on the basis of the total mortgage loans significantly in arrears (90 days or more) and foreclosures. The shadow inventory is currently

estimated at over 2 million homes. Finally, the price falls seen in recent years have taken a good many mortgaged houses into negative equity (when the amount outstanding on the mortgage exceeds the market value of the property) by reducing the underlying market value of the property. The "non-recourse" scheme⁽³⁾ applicable in some States may tempt some households to terminate their mortgage loan and assign their home to their mortgage agency. According to the available figures for the third quarter of 2010, loans in negative equity could make up almost 25% of the total.

Also, a second risk factor threatening the housing market is the uncertainty currently surrounding the reform of this sector. The crisis has in fact demonstrated that structural changes are needed in the way in which this market operates. In recent years, the Federal Reserve has thus made several suggestions to encourage in-depth reform of the US mortgage markets⁽⁴⁾. A number of international

- (1) Apart from initiatives such as a reduction in key interest rates and the provision of abundant, flexible liquidity for credit institutions and financial markets, initiatives which also benefited the housing sector, the Federal Reserve introduced a number of targeted measures designed specifically to reduce the interest rates on mortgage loans and improve the functioning of the credit markets (takeover of part of the debt of the government-sponsored US mortgage finance companies, such as Fannie Mae and Freddie Mac, and purchase of a substantial volume of mortgage-backed securities from those agencies). The federal government also took a number of important measures. The *Making Home Affordable* programme made it easier to repay mortgage loans, notably by rescheduling the cost of the loan. In 2009, a tax credit for house purchase was also introduced. It was abolished in the spring of 2010.
- (2) Ellis L. (2008) shows that housing investment in the United States represented 4.9% of GDP, on average, during this period compared to an estimated 3.8% on the basis of the fundamentals.
- (3) This means that, in a negative equity situation, the lender cannot demand repayment of the total amount of the loan, but only the value of the underlying residential property.
- (4) See f.e. Hoenig T. (2010).

CHART 7 STOCK OF UNSOLD HOUSES IN THE UNITED STATES



Source: Thomson Reuters Datastream.

institutions, such as the IMF and the OECD, have also put forward various proposals for reforming the housing policy⁽¹⁾. In recent years, it has in fact become apparent that, in comparison with the situation in other countries, the current system of government support is complex, expensive and poorly targeted, if the aim is to encourage home ownership and to ensure that housing is affordable. In an international perspective, the percentage of home ownership in the United States is not in fact exceptionally high. In mid-February 2011, the US Treasury Secretary announced a government plan to reform the mortgage market⁽²⁾. The main aspect of this plan concerns the removal of government involvement via the gradual dismantling of Fannie Mae and Freddie Mac⁽³⁾. The plan also includes proposals for improving the operation of the mortgage market and assigning a new role to the government in the housing sector. Congress has yet to decide on these proposals.

4.2.2 Belgium

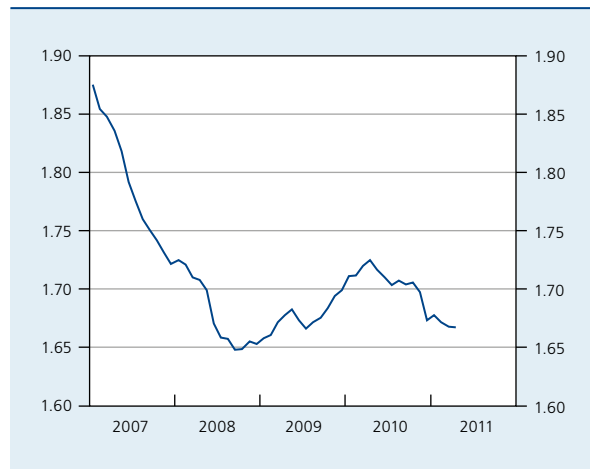
As in some other European countries, such as France and Finland, the housing market in Belgium featured a limited price correction during the financial crisis and a certain level of overvaluation, according to a number of indicators. In that context, the question is whether the factors which have hitherto helped to underpin prices will continue to exert such an influence in the future. Some of these factors which had contributed to that support in the mid-2000s could go into reverse. In that regard, apart from the general risks already mentioned, and especially the prospect of an interest rate rise, the following risks should be noted:

- an increase in residential property taxes, via a reform of cadastral incomes or a reduced allowance for loan expenses, might be envisaged, especially in a context of long-term fiscal consolidation. That would be in line with the recommendations of certain international institutions (particularly the OECD);
- certain measures providing support for renovation and building have already been scaled down or even abolished, and that process could be intensified, curbing housing investment and particularly expenditure on renovation.

Conversely, other factors could continue to support prices in the medium term:

- the general economic outlook, and hence the outlook for unemployment and household disposable income, now looks fairly positive in Belgium, and slightly better than the euro area average;
- although the household debt level has continued to rise in Belgium over the past two years – in contrast to the euro area, where the level has been stable since the

CHART 8 MORTGAGE LOAN DEFAULT RATE IN BELGIUM
(in % of outstanding contracts⁽¹⁾)



Source: NBB (Central Individual Credit Register).

(1) Based on the number of contracts.

beginning of 2009 –, it is still low (55 % of GDP at the end of 2010) in comparison with the euro area (65 % of GDP);

- the mortgage loan default rate has so far been relatively low. After having declined in 2007 and up to mid-2008, reaching a low point of 1.65 %, the default rate climbed back in the second half of 2008, in 2009, and up to April 2010 when it stood at 1.72 %. Since then, the default rate has edged downwards, reaching 1.67 % in April 2011.

Finally, the influence of certain factors on the future dynamics of house prices is uncertain:

- in addition to the likely interest rate rise, banks might consider tightening their (other) lending criteria (duration of the loan, loan-to-value ratio, collateral required, etc.). As already mentioned, the data reported by the banks to the Central Individual Credit Register show that the average term of new mortgage loans stopped increasing in 2008, and has even tended to decline. Nevertheless, the latest results of the bank lending survey for Belgian banks show no perceptible tightening of mortgage lending standards. The refocusing of banks on their core business is certainly a factor supporting mortgage activity;
- according to the Federal Planning Bureau's demographic outlook, the annual rise in the total population over the

(1) IMF (2010c), OECD (2010b).

(2) Department of the Treasury, Department of Housing and Urban Development (2011).

(3) Fannie Mae and Freddie Mac are government-sponsored mortgage finance companies which dominate much of the US mortgage market.

next ten years, on average, will be higher (at 0.64% per annum) than in the previous fifteen years (0.45% per annum). The population group aged between 25 and 44 years, more representative of potential property buyers, contracted in the past ten years but should begin to expand from 2013. Finally, the number of households could continue to grow more strongly than the population in general, in view of the structural trend towards a reduction in household size;

- also, the supply of housing could increase temporarily in 2011 and 2012, as the building permits issued in 2010 take effect, partly as a result of the VAT reduction – which has now been abolished – on the first € 50,000 tranche of construction invoices. If demand for housing were to slow down at the same time (e.g. owing to a rise in interest rates), that could amplify the deflationary effect on prices.

Conclusion

The latest house price cycle, which began in the mid-1990s in most of the advanced countries, is different from previous cycles in its exceptional duration, scale and synchronisation. The low level of interest rates, financial innovations, easy credit conditions and demographic factors bolstered demand for housing and caused a strong surge in house prices and residential investment. The rise in house prices was most marked in the United Kingdom, Spain, Ireland and France. Prices also recorded a significant, albeit smaller, rise in Belgium, the Netherlands, Finland and the United States. In Spain and Ireland, this rise clearly stimulated the demand for new housing and activity in the construction sector, which came to represent an exceptionally large proportion of total value added. At the same time, the household debt ratio reached unprecedented heights, making households vulnerable to negative shocks.

House markets overheated in the middle of the last decade. The problems already apparent in 2006 on the subprime segment of the American housing market triggered an economic and financial crisis which plunged the global economy into the most serious recession since the end of World War II. The residential property bubbles also burst in other countries.

Compared to what had happened during the upward phase of the cycle, the synchronisation of price movements between countries diminished. Thus, in some countries – namely Belgium, Finland, France – prices bottomed out and began rising again in the second half of 2009. Conversely, prices are still falling in Spain, Ireland and the Netherlands. The excesses accumulated during the

expansion period are clearly depressing economic growth. Thus, the reduction in the heavy household debt level and the fall in house prices are still curbing the dynamism of domestic demand in a number of countries. Spain and Ireland also face the difficult challenge of restructuring their economy on account of the malaise afflicting the construction sector.

This article has used a series of simple indicators to examine the degree to which house prices are under- or overvalued. If account is taken of fundamental factors like disposable income, population growth and the current extremely low level of interest rates (interest-adjusted-affordability), house prices do not seem to be too far away from their equilibrium value in most countries. However, they are still overvalued to a certain extent in Belgium. Nevertheless, these simple methods have their limitations, so that the results must be interpreted with caution. Also, it is possible that the current low level of interest rates – which accounts for the relatively good affordability of housing – may in reality cease to be a good approximation of general conditions for access to credit, which have been tightened considerably since the crisis in most countries. Normalisation of the level of interest rates is also one of the main risk factors for the housing market, in addition to the uncertainty over a possible negative impact of the crisis on potential growth and the consequences of the consolidation of public finances.

Although it is evident from this analysis that the decline in house prices in the United States was enough to correct the past imbalances, one can expect a number of factors to continue to impede the recovery of the housing market in the short to medium term. Thus, a large actual and hidden stock of unsold houses still remains, and there is uncertainty over the reform of the American mortgage markets, while the high unemployment rate continues to dent the confidence of American households. Where Belgium is concerned, the essentially fiscal factors which supported prices during the past decade will probably not have the same effect in the future. Conversely, the general economic conditions remain sound, in regard to both income and debt levels of households. In this uncertain context, however, the developments of the housing market will still need to be regularly monitored.

Finally, the crisis has undeniably highlighted the need for better supervision of the financial sector and stricter regulation. Several initiatives have already been taken to that end at global and European level. International institutions such as the IMF and the OECD have also addressed recommendations to various countries aimed at reforming the housing policy and the operation of the mortgage and housing markets.

Moreover, the public debt crisis which has shaken the euro area since 2010 has led to the establishment of stronger economic governance in the European Union. It has in fact become clear that, to prevent excesses and ensure the stability of EMU, it is essential to strengthen fiscal, structural and macroeconomic governance in the EU. Apart from stronger budgetary discipline, via reinforcement of the stability and growth pact, a new mechanism for monitoring macroeconomic imbalances and competitiveness will become a vital pillar of this new economic governance. In the preventive stage of this new

mechanism, the risks will be assessed annually by means of a warning signal based on a scoreboard comprising a small number of indicators. Recent history has shown that housing markets can be a key factor not only in imbalances but also in divergences between countries: the early detection of bubbles forming on these markets is thus crucial. For this reason, the movement in real house prices could be incorporated in this scoreboard. The vulnerability of the private sector could be assessed by the ratio between the private sector's debt level and GDP, or by the expansion of lending to the private sector.

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