

Residential property in the EU28: Unity in diversity



Johan Van Gompel, Senior Economist KBC & Jan Van Hove, Chief Economist KBC

In recent years, there was a broad-based recovery in Europe's housing markets. Since the second half of 2016, a majority of EU countries are again recording annual house price increases of above 5%. The price rally has prompted public debate as to whether EU property markets are overvalued. In general, fundamental factors, such as disposable income, interest rates and demographics, can explain much of the recent rally seen in the EU28. The upturn can, in particular, be linked to the prevailing low interest-rate environment and to the economic recovery that started early 2013. Looking forward, the sustained positive growth environment will likely provide sufficient counterweight to rising interest rates. Therefore, further house price increases, albeit at a notably more modest pace than of late, are the most likely scenario for the coming years. The main risks facing Europe's housing markets are to emerge in circumstances where there is: (1) a severe growth slowdown combined with rising unemployment, (2) an unexpectedly strong and sudden increase in interest rates, and (3) a decline in popularity of real estate as an investment. Based on our assessment of valuation metrics and household indebtedness indicators, vulnerabilities to such shocks seem the largest in Sweden, Luxembourg and Austria.

The purpose of this report is threefold. First, it maps and compares the price developments in European residential real estate markets (Section 1). We illustrate that the national property markets have displayed quite different price developments since 1995. This can partly be explained by a considerable diversity in terms of demand and supply features of the countries' housing markets (Section 2). Second, the report provides an overview of various valuation metrics that help inform the current public debate as to whether European housing markets are now overvalued based on economic fundamentals (Section 3).



Third, these valuation metrics are complemented by indicators of household indebtedness for the EU countries. We bring the figures together in two dashboards that provide an overview of the vulnerabilities of the EU countries' property markets. We also present simulations for EU28 house price changes in 2018- 2019, based on macro-drivers, and give an overview of factors that likely determine Europe's property markets in the longer term (Section 4).

It is important to emphasize that our assessment is based on macroeconomic fundamentals. The calculations do not fully account for the role played by country-specific factors, which can be hugely important as well. Our purpose is not to predict potential future corrections, but rather to point at potential vulnerabilities of the EU28 housing markets from two perspectives (valuation and indebtedness). Moreover, the country-level results do not preclude the possibility of a different conclusion at the regional level within countries. House price dynamics can vary tremendously within a country, with prices in the capital in particular often rising more than the national averages, driven in part by factors such as the role played by foreign buyers.

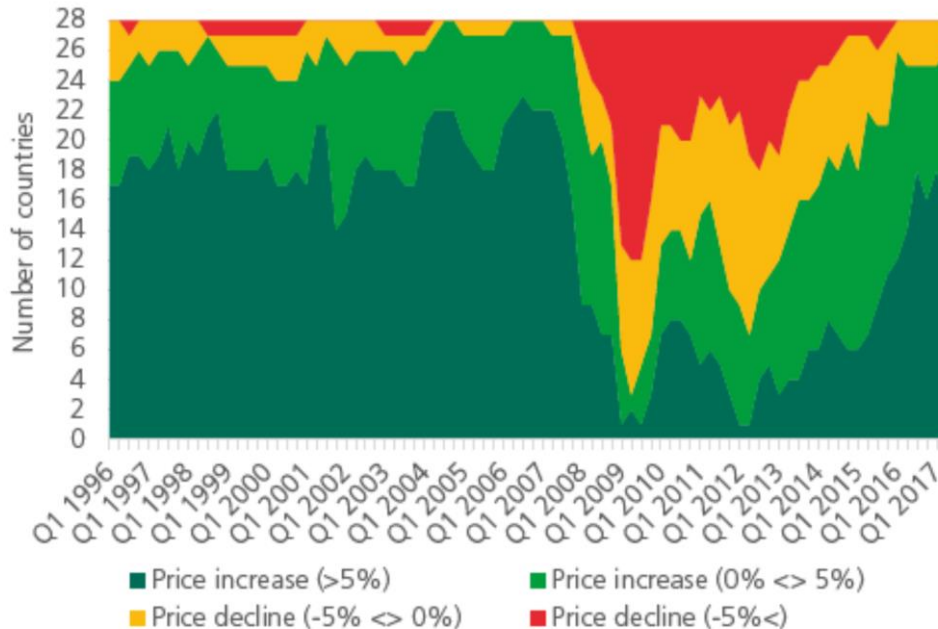
1. Past developments of prices

Property markets are prone to boom-bust cycles. They typically reflect overshooting of house prices (i.e. a long-term deviation from fundamentals) followed by undershooting (i.e. a severe correction). This was seen in many EU countries in the run-up to and during the past financial and economic crisis. In this section, we illustrate that the EU countries' experiences since the mid-90s, and during the crisis in particular, were far from uniform.

Long-term price development

House prices across Europe have shown significantly different developments during the past two decades. Before the outbreak of the financial crisis in 2008, there was an upward price movement almost everywhere, but its intensity varied strongly across countries. Nevertheless, a clear majority of countries experienced an annual price increase of above 5% in 1995-2007. This is illustrated in Figure 1, where we show the distribution of the 28 Member States according to the annual price development on their housing market. During the crisis, the downturn in prices was unequal as well, and in some countries even (almost) non-existent. In recent years, we saw a broad-based recovery. Since the second half of 2016, a majority of countries are again recording price increases of above 5%. However, a few countries (Italy and Greece) still have declining prices, albeit less pronounced.

Figure 1 – Distribution of EU28 countries according to the year-on-year price development on their housing market (Q1 1996 - Q2 2017)



Source: KBC Economic Research based on National Statistical Offices and ECB

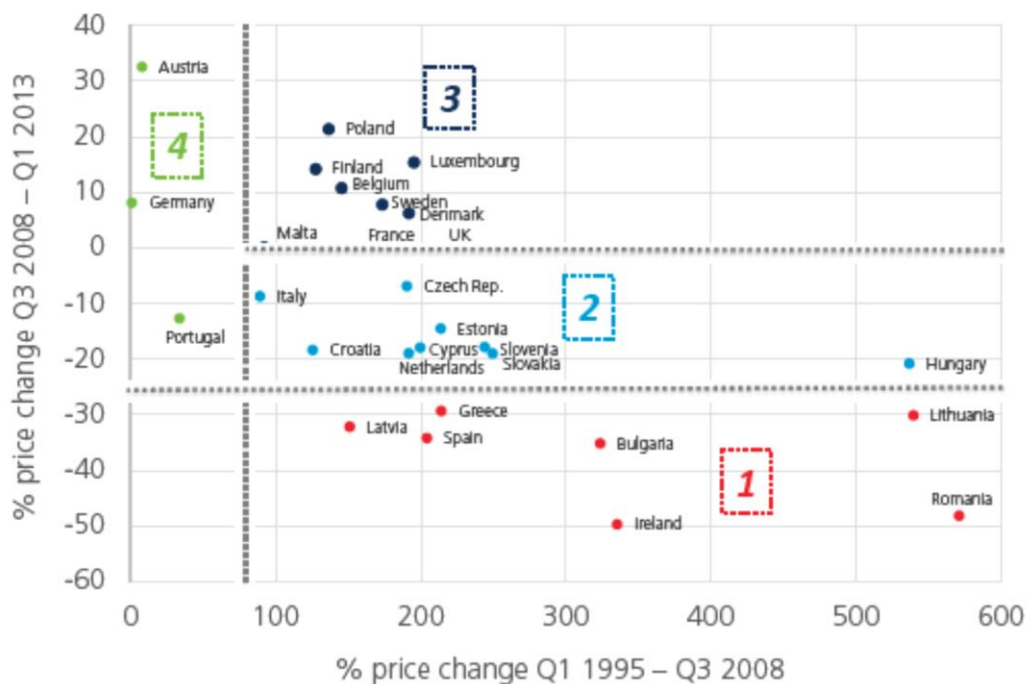
Broadly speaking, the 28 EU Member States can be divided into four groups (Figure 2):

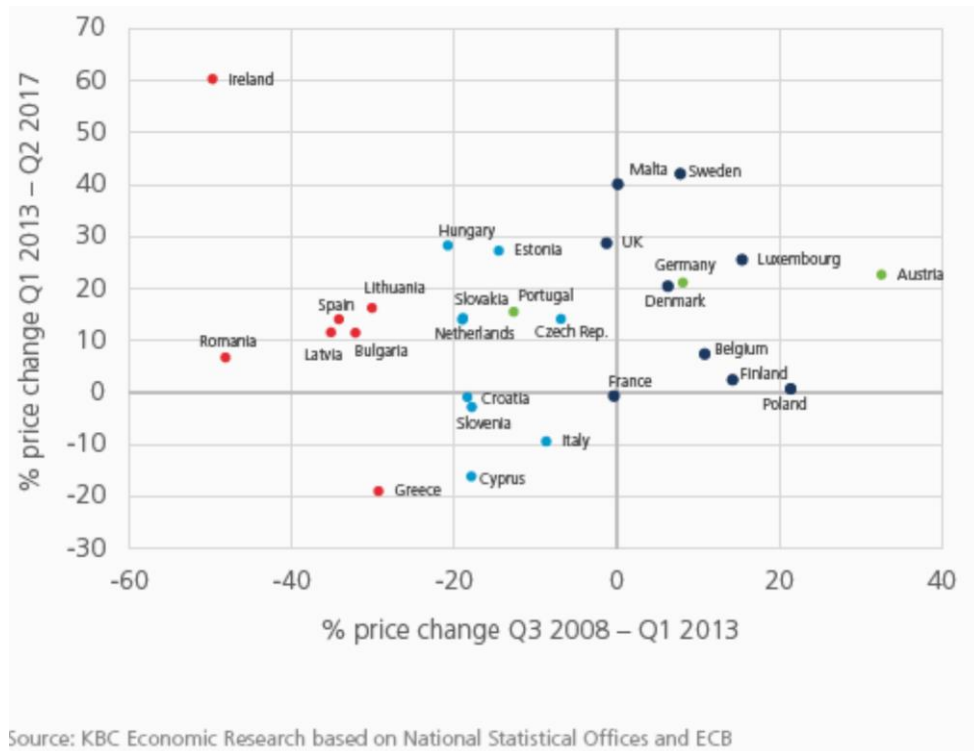
- (1) A **first group** of countries (red dots) experienced very sharp house price increases before the start of the financial crisis, followed by an intense slump. Ireland, Spain, Greece, Latvia, Lithuania, Bulgaria and Romania belong to this group. With the exception of Greece, where the correction continues today, prices have been picking up significantly again in these countries in recent years;
- (2) A number of countries (light blue dots) saw strong price increases before the crisis, but the downturn that followed was more modest. This **second group** includes the Netherlands, Italy, the Czech Republic, Slovakia, Slovenia, Hungary, Estonia, Croatia and Cyprus. In Italy, Slovenia, Croatia and Cyprus, prices did not yet recover (much) in recent years;
- (3) A **third group** (dark blue dots) also saw strong price increases before the crisis, but the correction that followed was rather limited or even non-existent. This group consists of Belgium, Luxembourg, France, Denmark, Sweden, Finland, the UK, Poland and Malta. In recent years, price increases have accelerated quite strongly again in Luxembourg, the UK, Sweden and Malta;

(4) A **fourth group** of countries (green dots) includes Germany, Austria and Portugal, where house price increases since 1995 lagged far behind the growth rate seen in the other EU countries. In these three countries price increases have only accelerated in recent years.

The divided picture might seem surprising in the light of the European convergence and integration process. In particular, although euro area countries had broadly similar nominal interest rates, at least before the outbreak of the financial crisis, their house price patterns diverged strongly. Also, the different price trends cannot (fully) be explained by economic catch-up, since some of the highest rates of increase of house prices occurred in highly developed countries in Europe. Explanations for marked differences in national trends are plentiful. First, despite the economic and monetary integration in Europe, the performances of the countries' economies have varied, sometimes drastically, with widely different paths for national GDP growth and unemployment rates. Second, houses typically are non-tradable goods, which – except to some extent for vacation homes and investment properties - limits international arbitrage. Hence, price developments are mainly determined by country-specific demand and supply features of the countries' housing markets (see e.g. Hilbers et al, 2008). These include demographics, fiscal and structural policies (housing taxation and subsidies, supply rigidities like building regulations, etc.) and the ease and cost of funding property purchases (mortgage interest rate levels, regulatory regimes, etc.). We will discuss such characteristics in Section 2 of this report.

Figure 2 – Long-term development of house prices in the EU28

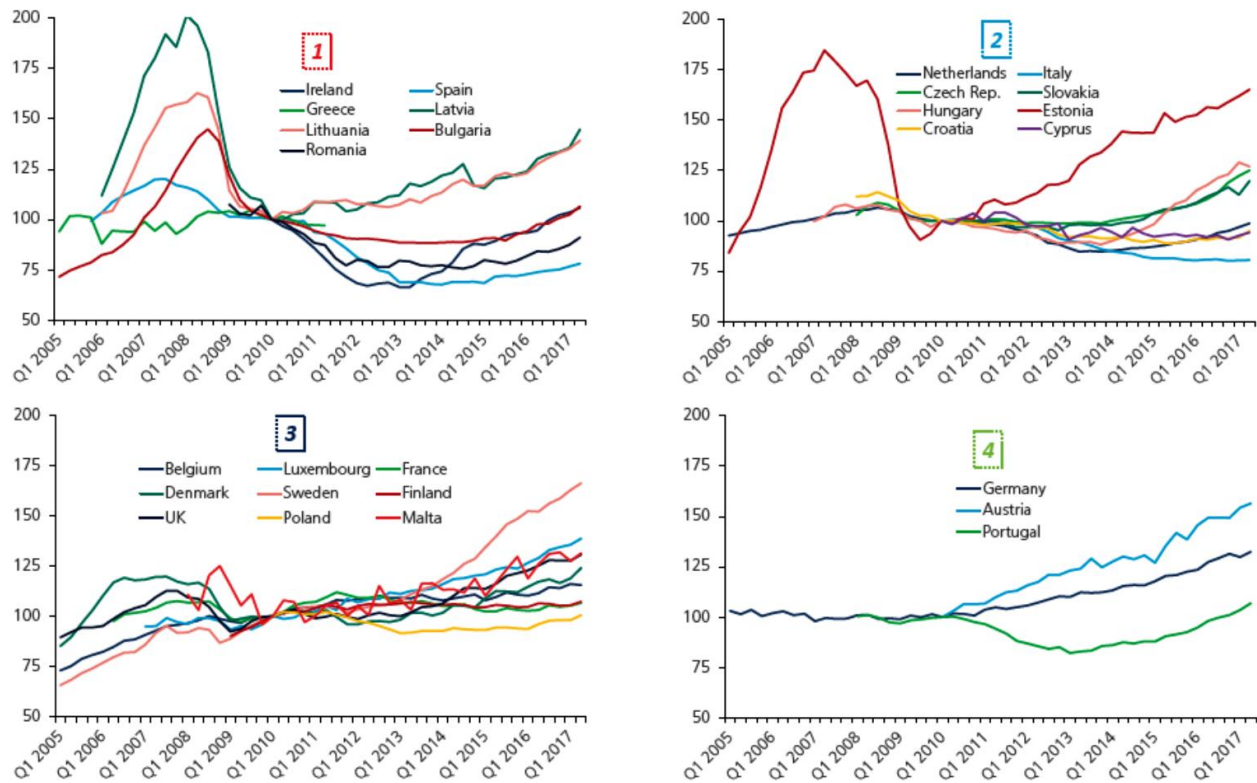




Recent price developments

The recent financial crisis has highlighted the importance of correctly measuring the prices of residential property. To that end, Eurostat launched its harmonised house price index (HPI) in 2009, with the purpose of providing comparable, timely and frequent statistics on changes in the EU28's property prices. Figure 3 illustrates Eurostat's HPI for the four groups of countries identified in the previous section. The data indicate that a corner has been turned and a clear recovery is now firmly established. For the EU as a whole, the annual rate of price change started to increase in mid-2013, turning positive at the beginning of 2014. In 2015 and 2016 house prices have rallied strongly again in a majority of EU countries. The broad-based upturn is supported by stronger price growth both in countries that did not experience a price collapse in the aftermath of the crisis and in countries that did suffer from such a bust but that have in the meantime seen big corrections that facilitate a recovery going forward. Nevertheless, the upturn in prices has been taking place at a notably different pace across countries. Countries that have been at the upper end of the spectrum of the price increases are Ireland, Hungary and Sweden. The development is most striking in the case of Sweden as the country had already experienced a strong price increase before the crisis, but without a marked correction thereafter. Italy and Greece are the only EU countries where price developments remained negative even after 2014. In Finland, France, Cyprus and Croatia no clear upswing in prices is seen thus far.

Figure 3 – Short-term development of house prices in the EU28 (existing dwellings, Q1 2010 = 100)



Source: KBC Economic Research based on Eurostat (Harmonised House Price Index)

These evolutions point to a clear relationship between the general economic development and house prices. Over the short to medium-term GDP and housing cycles are indeed subject to close co-movements (see Rünstler, 2017). Several European countries hit severely by the crisis in terms of economic output and employment, were also confronted with a substantial downturn on their property market. The most explicit examples are Ireland and Spain. Both countries suffered from a deep economic crisis due to their relatively large financial and real estate sectors, and the connections between both of these. In other crisis countries, like Italy and Portugal, the crisis effect was not as pronounced in their real estate market. The recent pick-up in house prices can be linked to the recovery of the business cycle in Europe that started in early 2013, with GDP growth now strengthening in almost all European countries. Households in most EU countries have been enjoying a (sometimes rapid) rise in their incomes thanks to strong job creation and tightening labour markets, which are pushing up wage growth, particularly in Central and Eastern Europe. On top of that, monetary policy has remained very accommodative in recent years and long-term interest rates, although rising, have remained at historically low levels. This has fed affordability of housing for households and enhanced the attractiveness of property as an investment, both of which resulted in higher demand for dwellings.

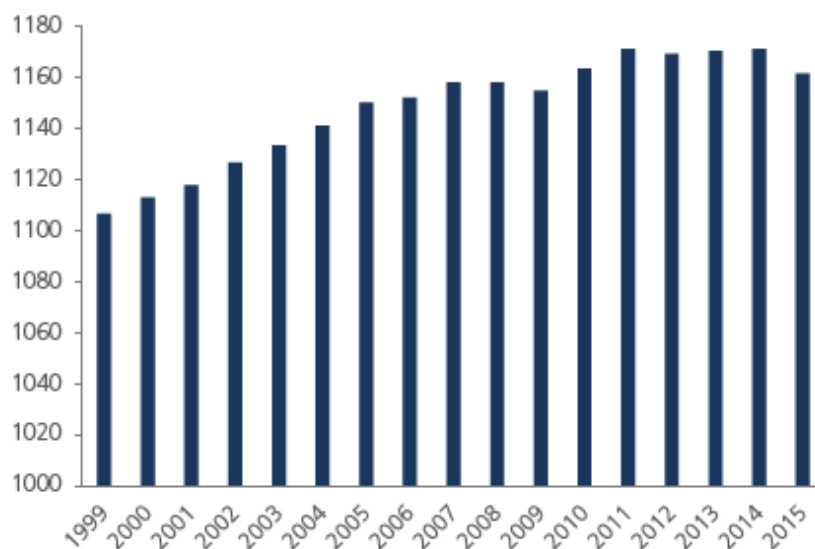
2. Housing market characteristics

National property markets are products of an often-complicated range of geographical, demographic, socio-economic and political factors. Markets in the EU28 display considerable diversity in terms of these features, which explain clear differences in past national developments in house prices. It is difficult, and therefore beyond the scope of this study, to provide a view on how each of these features individually affects prices, since such features often interact and these causal relationships are often two-way with, e.g., price developments influencing authorities' property-related policies. Also, recent developments show that even within groups of countries with similar structural characteristics, some countries were hit hard by property-related crises, whereas others were not. In this section, we first focus on housing demand and supply and then give a (non-exhaustive) overview of specific features.

Housing demand and supply

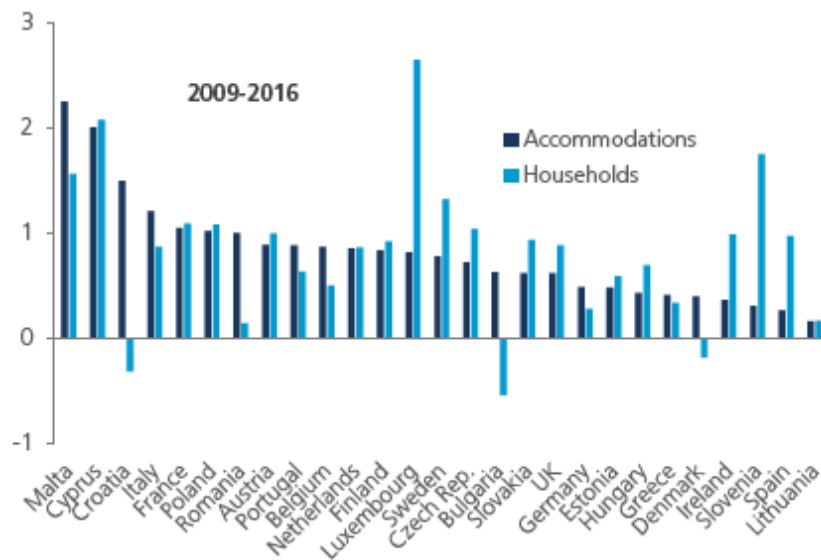
As in any market, price formation in the housing market results from the interaction between demand and supply. Key factors for housing demand include disposable income and interest rates. Both affect the affordability of housing, which we discuss in Section 3 in the context of housing market valuation. There are other factors outside the business cycle context as well, the most important one being demographics. The trend in household formation plays a greater role in determining demand for accommodation than the population trend. As a result of the fall in average family size, the number of households in the EU has increased more rapidly than the population. The trend towards smaller families relates to an increased diversity in household types that reflects a range of socioeconomic drivers, including an increase in the number of one-parent families, the ageing population and the decrease of the average number of children per family (see Van Gompel and Van Goubergen, 2017).

Figure 4 – Housing stock versus households in the EU28
(number of accommodation units per 1,000 households)



Source: KBC Economic Research based on ECB (Structural Housing Indicators), European Mortgage Federation and Eurostat

Figure 5 – Housing supply versus demand
(average yearly growth in the number of accommodations and households)



Source: KBC Economic Research based on ECB (Structural Housing Indicators), European Mortgage Federation and Eurostat

To determine whether there is shortage or surplus of properties in the housing market, the number of households (demand) is generally set off against the number of dwelling units (supply). In reality, however, there is no clear link between these two. That is because households are becoming more varied and it is difficult to categorise them as ‘residential’ (the reason being the increasing presence of co-parenting, living-apart-together relationships, etc.) and also due to the increasing number of second homes, student lodgings and the use of accommodation for the purposes of tourism (e.g. hotel rooms, recreation houses...). This, together with a normal requirement for some level of vacancy rates to smooth transitions from one property to another, explains why the ratio of accommodation units to households is above 1 in all countries and relatively high in traditional tourist destinations in Southern Europe. Hence, it is not easy to interpret and compare the absolute value of the ratio across countries.

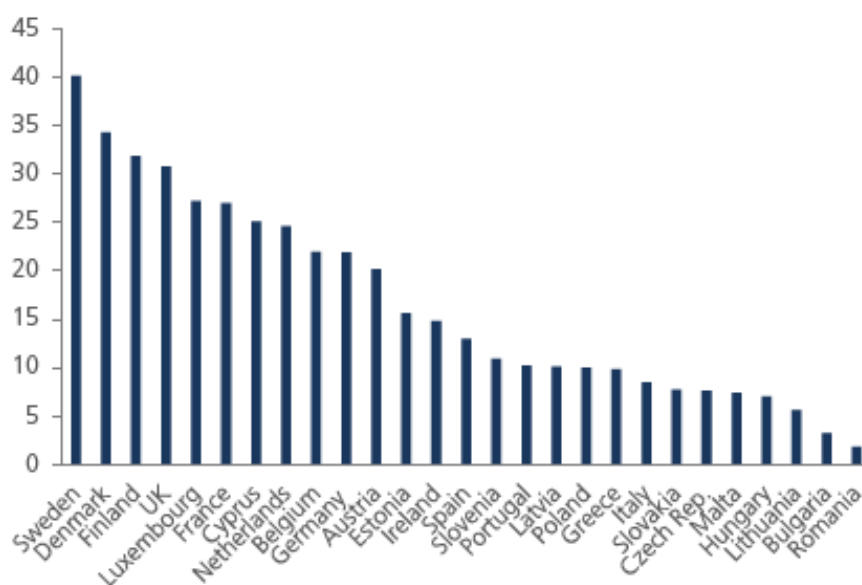
For the EU as a whole, the ratio of accommodation units to households showed an increasing trend since the 90s (Figure 4). In fact, this is at odds with the rising trend in prices seen in most countries till the financial crisis. One explanation is that the rising ratio is attributed to the increasing number of second homes, student lodgings and tourism accommodations, which also exerted pressure on prices. In recent years, the ratio seems to have stabilised or even fallen slightly. In most countries, investment in new housing came down after 2007 (in the EU28 from 6.6% of GDP to a low of 4.8% in 2015), resulting in a slower increase in the accommodation stock. The declining ratio of accommodation units to households likely contributes to explaining the recent recovery in house prices seen in most countries. In the period 2009-2016, the average yearly increase in the number of households surpassed the average yearly increase in the number of accommodation units in two thirds of EU countries (Figure 5). A number of countries recording the highest gap between household growth and accommodation growth (Ireland and Sweden) also recorded relatively strong house price increases in recent years.

Institutional and structural features

Housing demand and supply are affected by many institutional and structural features that are particular to a country’s residential property market. These features can play a key role in accentuating or mitigating price developments in the property sector. On the demand side, intra-national **residential mobility** is an important factor, since a high frequency of switching residence can accelerate the speed with which price adjustments take place. In Europe, intra-national residential mobility is high in Scandinavia and the UK (Figure 6). From Eurostat’s SILC-survey, we know that around one third of the population in these countries move to another dwelling within a five-years period. In most Southern and Central European countries, the figure is below 10%. Correspondingly, the rate of (outright) **home-ownership** in these countries is relatively high.

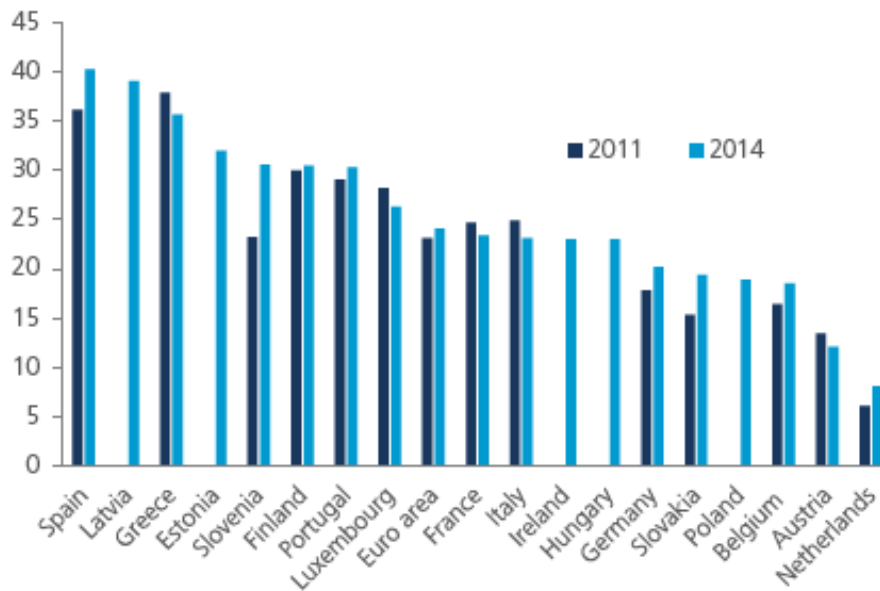
Eurostat data suggest that the number of owner-occupiers in Europe has fallen since 2010 and, conversely, the number of tenants has increased. This is partly attributable to the pronounced increase in the number of immigrants, more of whom turn to the rental market for accommodation. In addition, the rising number of tenants is, at least for some countries, likely also due to the steep house prices rises over the past two decades. This affected the affordability of property for particular segments of the population and, combined with relatively modest increases in rentals, encouraged people towards the rental market in most countries. **Buy-to-let markets** therefore have grown substantially over the past several years in many countries. The affordability issue went hand in hand with lower interest rates increasing the relative return in rental property for investors, enhancing the attractiveness of, and the demand for, housing as an investment. Results from the ECB Household Finance and Consumption Survey show that the number of households owning other real estate property than their main residence has indeed increased in many countries (Figure 7).

Figure 6 – Residential mobility in the EU28
(% of people having moved to other dwelling within the last five year period)



Source: KBC Economic Research based on Eurostat (SILC)

Figure 7 – Households owning other real estate property than their main residence (in % of households owning real estate)



Source: KBC Economic Research based on ECB (Household Finance and Consumption Survey, April 2013 and December 2016)

Housing markets are also affected by **macroeconomic, structural and macro-prudential policies**. These policies work by altering the path of the various fundamental factors determining general housing market conditions. Monetary policy affects short-term interest rates, which either directly or through their impact on longer-term rates will have an important impact on the affordability of housing. Currently, monetary policy in Europe remains supportive for housing markets. Structural policies, like building and land use regulations or authorisation processes for permits, affect construction costs and times, and thereby the supply of housing. In some countries, such as Ireland and the Czech Republic, supply constraints have meant supply has not responded quickly to demand in recent years, and can explain to some degree the sharp price increases seen recently. According to OECD research, the elasticity of housing supply in relation to prices is generally rather limited, implying that prices are primarily determined by the demand for housing in the short term (see Sánchez, 2011).

Supervisory and regulatory (prudential) policies affect housing market dynamics through their impact on the cost and ease of financing house purchases. These typically include capital requirements for lenders and loan limits for borrowers. More generally, other characteristics of the **housing finance sector** - such as transaction costs and the importance of non-banks in credit provision - are also relevant for developments on housing markets. A study by Rünstler et al. (2016) shows a large degree of heterogeneity in financial/credit cycles across EU States, partly as a result of diverging characteristics. In a low interest-rate world, the role of macro-prudential policies is becoming increasingly important. **Taxes on property** also vary across countries. From OECD statistics (2015), we know that overall taxation - i.e. transaction and recurrent taxes on the transfer, use and ownership of property - in Europe is the highest (above 3% of GDP) in France, the UK, Belgium and Luxembourg, and the lowest (below 1% of GDP) in Latvia, Slovenia, Austria, Slovakia, the Czech Republic and Estonia.

Central and Eastern European countries' housing markets have also been exposed to **transition-specific factors** (see e.g. Égert and Mihaljek, 2007). In the past, housing markets in these countries were distorted owing to large-scale public ownership and rent regulations. In the last decades of the communist regime, there appears to have been underinvestment in that housing construction was often limited to small, standardised apartments. At that time, there were chronic shortages of housing, often with long waiting lists and sometimes two or more families to share a dwelling. Thus, the strong price increases in these countries up to the financial crisis might to some extent be viewed as a correction for these distortions. Moreover, part of these price increases reflects improvements in the quality of the housing stock. Finally, in many countries in the region, in connection with EU entry, foreign demand for housing has increased, primarily in capital cities and holiday resorts.

3. Housing market valuation

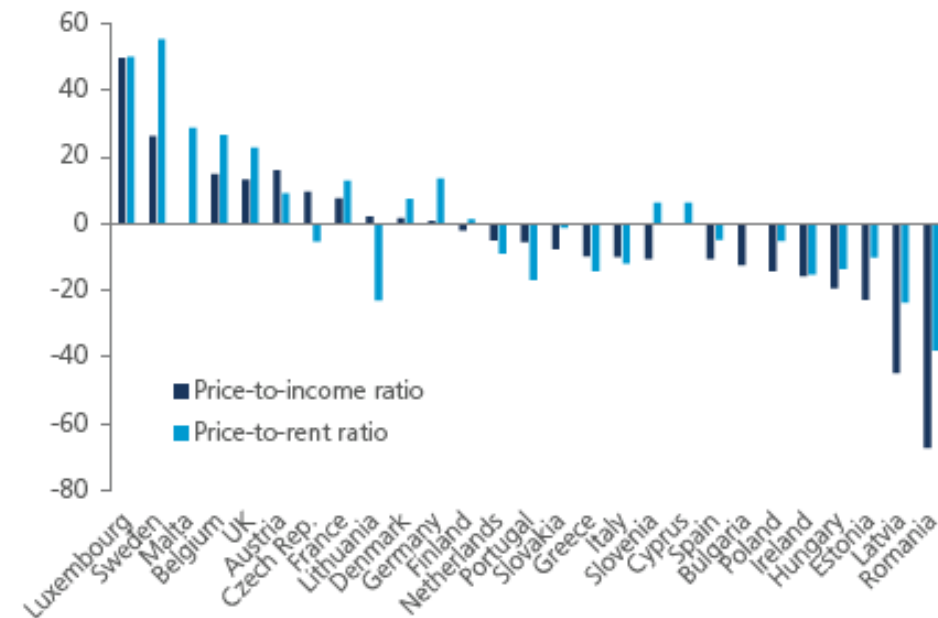
In this section, we present different valuation indicators for the EU28. One set of frequently used metrics are price-to-income and price-to-rent ratios, that relate house prices to household income and to rentals. More comprehensive valuation methods, often based on an econometric model, include other relevant factors, such as interest rates and demographics. It is important to mention that our assessment focusses only on the particular set of economic fundamentals as determinants of correct house prices, and does not account for the role played by country-specific factors which can be important as well. Moreover, our approach is based on macro-data only, neglecting microeconomic dynamics like regional differences or price evolution differences across real estate categories.

Traditional valuation measures

The price-to-income ratio relates the development of house prices to that of per capita disposable income. If the ratio rises to well above its long-term average, this indicates that there is pressure on households' funding capacity. Therefore, the ratio reflects the trend in affordability of home-ownership for an average household. In cases where the ratio deviates excessively above its long-term average, prospective buyers would find purchasing a home more difficult, which in turn should reduce demand and leads to downward pressure on prices. The price-to-rent ratio compares house prices and rentals. In equilibrium, households should be indifferent between buying and renting. When the price of houses for sale increases too much relative to rents, potential buyers find it relatively more advantageous to rent, which should in turn exert downward pressure on house prices. In practice, calculating this ratio generally involves relating house prices to the component of the rental value in the harmonised consumer price index.

Figure 8 shows both ratios in relation to their average for the period Q1 1996 – Q2 2017. According to these measures, property markets in Luxembourg and Sweden were by far the most overvalued in the EU in Q2 2017. In these two countries, the ratios exceed their long-term average by 25% or more. In Malta, Belgium, the UK, Austria, the Czech Republic and France, there is also some indication of an overvaluation, albeit to a lesser degree. On the other side of the spectrum, mainly countries in Central and Eastern Europe but also Ireland and Southern European countries have ratios that are (well) below average historical values.

Figure 8 – Traditional valuation measures of EU28 housing markets (% deviation from period average Q1 1996 - Q2 2017) (*)



Source: KBC Economic Research based on Eurostat (2017) (*) Croatia: n/a

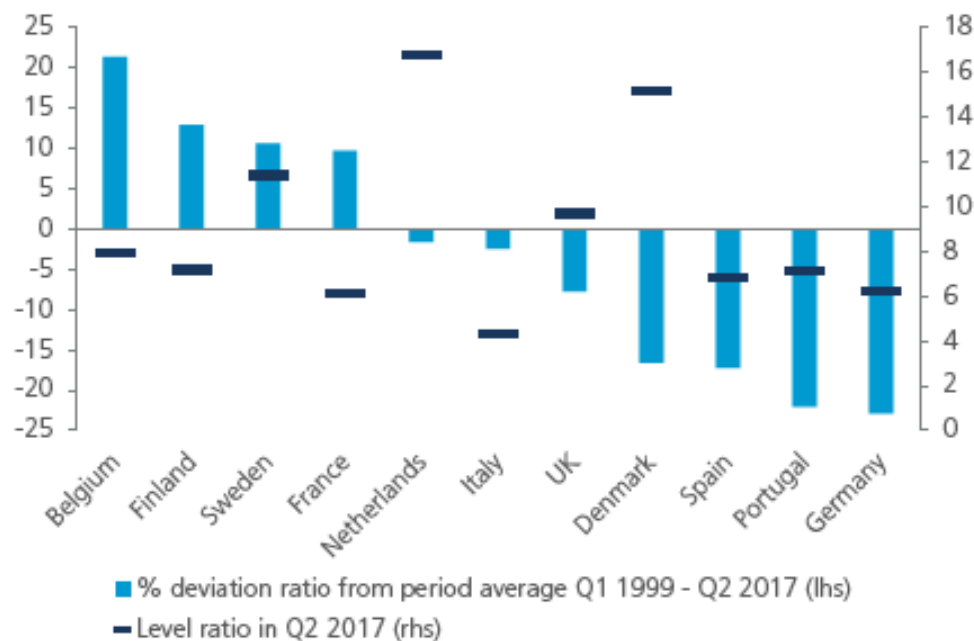
The main advantage of these often-used measures is their simplicity of computation. Conclusions based on both measures have to be considered with caution, however, due to their simplifying assumptions. First, each ratio has its own specific defects. E.g., aggregate disposable income is in fact not the appropriate denominator in the price-to-income ratio, as it covers the whole population instead of that of (potential) home buyers. In regard to the price-to-rent ratio, rentals can be highly regulated, distorting the interpretation of the ratio. Moreover, the house price is calculated on the basis of new transactions on the secondary market and therefore reflects current market conditions, whereas rents correspond to the rent component of the consumer price index and usually reflect the movement in rents under existing leases rather than that under new leases. Second, from a technical point of view, there is the shortcoming that the calculated equilibrium level depends on the period chosen, which is often too short - due to lack of historical data - to be able to consider the average as a real long-term equilibrium level. Comparing the most recent values of the ratios with that level therefore provides a distorted picture, so that they cannot be used as a statistically significant valuation. Nor is it certain that the equilibrium value is constant over time, because of changes in factors such as property taxation and the operation of the mortgage market.

Debt-servicing approach

More generally, the traditional valuation metrics have the shortcoming that they only take account of one aspect (income or rent) and ignore other factors that also determine house prices (such as interest rates and demographics). The traditional price-to-income ratio, meant to assess housing affordability, can be extended by taking mortgage interest-rate developments explicitly into account.

Since a property purchase is usually financed by borrowing, an affordability analysis should take account of the debt service or repayment burden incurred by the homeowner. The debt service-to-income ratio gives broader indication of affordability, by relating debt service payments (i.e. capital repayments and interest) to disposable income. Two opposite forces have influenced the ratio in the past decades. The prevailing low-interest environment exerted downward pressure on the ratio, whereas softer (sometimes exuberant) mortgage-lending policies of particular banks and the corresponding increase in household indebtedness drove the ratio upward.

Figure 9 – Debt-service-to-income ratio in a selected number of EU28 countries



Source: KBC Economic Research based on BIS data

In order to assess the valuation of house prices, we can express the debt service-to-income ratio as a percentage deviation from its long-term average, in the same way as for the price-to-income and price-to-rent ratios (with all the due caveats mentioned above). Time series for the ratio are available from the Bank for International Settlements (BIS) for only a limited number of EU countries (Figure 9). The deviations from the long-term average indicate that the Belgian, Finnish, Swedish and French housing markets are overvalued by 10-20%. One should be cautious in comparing the results with those obtained from the price-to-income ratio, as the reference period is shorter (Q1 1999 – Q2 2017) due to limited data availability.



Econometric-model approach

Given the numerous caveats attached to the valuation metrics discussed so far, it is preferable to place greater reliance to model-based approaches that take into account a wider set of fundamental factors. Many publications over the last ten years have set out to interpret the price trends on the property market by means of co-integration models. These models, also used by the ECB, the EC and the IMF, aim to establish a long-term or equilibrium link between house prices and a series of fundamental determinants. The extent to which the actual house price deviates from the estimated equilibrium level can then be considered as a measure of over- or undervaluation. In practice, the deviation corresponds to the residual of the econometric regression equation, which represents the part of the house price development that cannot be imputed to the explanatory variables.

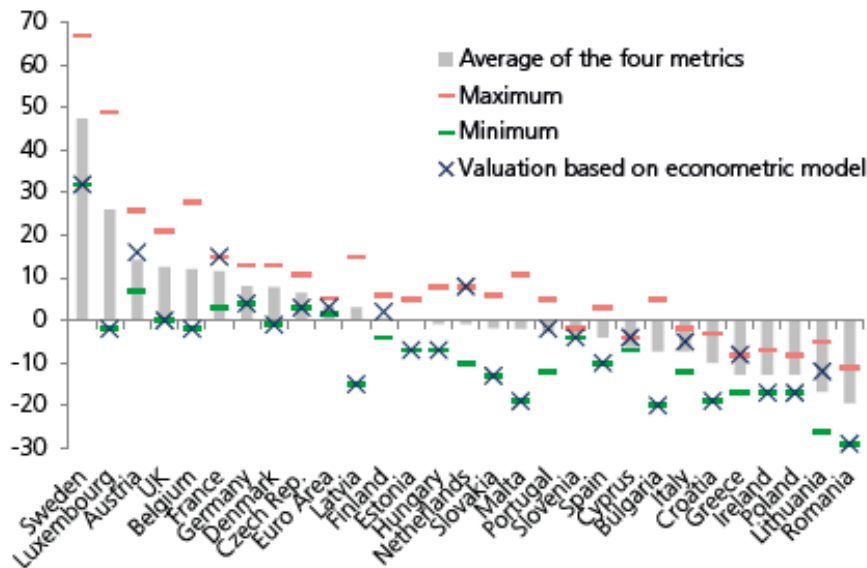
Due to the lack of sound statistics on housing supply, empirical research has been largely limited to demand factors in studies of house prices. These generally involve household disposable income, the mortgage interest rate and a variable reflecting demographic developments (i.e. total population or the number of households). Sometimes, housing investment by households is used as a proxy for housing supply. In a recent discussion paper published by the European Commission, a co-integration relationship was estimated between house prices and their demand and supply determinants, based on panel data for the EU28 countries from the early 90s till 2015 (see Philipponnet and Turrini, 2017). Greece, the United Kingdom, Sweden, Portugal and Latvia were the countries where prices in 2015 were the highest compared to their fundamentals. At the other end of the spectrum, prices in Romania, Ireland, Poland, Spain and Germany were found to be much lower than fundamentals.

Regression analyses are useful as a valuation method compared to traditional measures, but the results can be subject to a number of valid criticisms as well. For instance, the estimated relationship can often be unstable, because the regression coefficients vary over time, due to changes in the regulatory conditions, product innovation, property taxes, etc. Financial institutions may e.g. decide to ease or tighten their mortgage lending conditions, the latter for instance as result of the financial regulator becoming more stringent. The factors mentioned often impact households' borrowing capacity, but usually are more difficult to adequately take into account in a regression analysis. Instead of becoming a measure of market valuation, the difference between recorded property prices and the equilibrium price, as recorded by the regression, may result from the omission of one or more fundamental determinants.

Valuation measures ECB

The ECB also uses an econometric model-based indicator in its assessment of EU's housing markets, on top of three traditional metrics (i.e. the price-to-income, price-to-rent and an asset-pricing approach). The indicator corresponds to the residuals of the regression of house prices on household disposable income, the mortgage interest rate and the housing stock. The specification of the equation may vary according to the characteristics of the country considered and data availability. Due to data limitations, often real GDP and the 10-year government bond interest rate are used as explanatory variables, instead of disposable income and the mortgage rate. One should be cautious therefore when comparing the models' findings with the ones obtained from alternative econometric models. This, by the way, also applies to the traditional metrics, as the ECB often uses a relatively short reference period to compute the long-term averages of the price-to-income and price-to-rent ratios.

Figure 10 – Residential property market valuation according to the ECB
(Q2 2017, % over- or undervaluation) (*)



Source: ECB (*) Q4 2016 or Q1 2017 if Q2 2017 not available

Ultimately, the ECB considers the average of the four metrics to assess the housing market valuation level. Figure 10 shows this average for the EU28 countries, as well as the minima and maxima (corresponding to the lowest and highest estimates using the four methods) and the econometric model-based indicator. It is seen that the range across different valuation techniques differs widely for some countries, illustrating that the metrics are surrounded by a lot of uncertainty. In Q2 2017, the average points to a strongly overvalued market in Sweden (by 48%) and Luxembourg (by 26%). Sweden in fact is the only country in the EU where the econometric model-based indicator suggests an extreme overvaluation, by more than 30%. For Austria and France, the model-based indicator points at an overvaluation of some 15%. Remarkably, several countries that previously experienced an overshooting of house prices, creating a substantial overvaluation, now see their property market being undervalued due to an undershooting of prices following the severe correction in the aftermath of the financial crisis. Spain, Ireland and some Central European countries are in that situation. The undervaluation in these countries is still in place, despite the upswing in prices seen in recent years.

4. Vulnerabilities and price simulation

Developments in the property sector can have major implications for financial and macroeconomic stability. Residential real estate represents an important part of households' wealth and constitutes a source of collateral for lenders. Furthermore, housing construction is typically an important component of the real economy, as a source of employment, investment and growth. In that context, the monitoring of the valuation of house prices and the indebtedness of households has become a key element in the detection of any property bubbles.



In this section, we present dashboards that give an overview of potential vulnerabilities from both perspectives (valuation and indebtedness). We conclude by presenting a simulation for the EU28's property markets in 2018-2019.

Combining valuation dashboard

In the previous section of this study, we presented different valuation approaches separately, each delivering insights from different angles. Although it was argued that the econometric approach is the most preferred method, it remains useful to use various approaches in a complementary way in the final assessment of house prices. Table 1 brings calculations for different valuation metrics from two sources (KBC and ECB) together in one dashboard. We include: (1) the traditional often-used price-to-income and price-to-rent ratios (calculated by KBC), (2) the econometric model-based valuation (KBC and ECB), and (3) the average of the four-valuation metrics calculated by the ECB (see above).

Vulnerable property markets are identified on the basis of setting thresholds, that are determined by the distribution of the indicators across countries. Given the limitation of KBC's econometric models to its own home countries, the threshold-approach is not applied in this case. Countries belonging to the 90th percentile of the distribution of the indicator are in red. Markets in these countries are considered as most vulnerable in terms of their overvaluation. Sweden, Luxembourg, Austria and, to a lesser extent, France belong to this group.




Countries belonging to the 80th percentile of the distribution (orange) warrant close monitoring as well. This applies to Belgium, the UK and Germany. For the Netherlands and the Czech Republic there is limited indication of overvaluation, both from the ECB's econometric model. At the other end of the spectrum, the threshold is set on the basis of the 20th percentile of the distribution (green). Here, countries are identified in which housing markets are least vulnerable from a valuation point of view, with markets being (clearly) undervalued. Ireland and Romania clearly belong to this group. In several Southern and Central European countries (particularly Greece, Poland, Latvia, Lithuania and Croatia) there is green as well, albeit to a lesser extent.

Table 1 - Valuation dashboard of residential real estate markets in the EU28

(Q2 2017, positive value = overvaluation, negative value = undervaluation)

	Price-to-income ratio KBC (*)	Price-to-rent ratio KBC (*)	Econometric model KBC (**)	Econometric model ECB (***)	Average of ECB metrics (****)
Belgium	14.8	26.6	-4.3	-2.0	12.0
Germany	0.3	13.5	-	4.0	8.0
France	7.6	12.9	-	15.0	11.5
Netherlands	-4.9	-9.0	-	8.0	-0.8
Luxembourg	47.1	50.2	-	-2.0	26.0
Austria	16.4	9.0	-	16.0	14.3
Sweden	23.1	55.4	-	32.0	47.5
Denmark	1.6	7.5	-	-1.0	7.8
Finland	-2.0	1.4	-	2.0	0.5
Ireland	-15.7	-15.2	-19.3	-17.0	-12.8
UK	13.3	22.8	-	0.0	12.5
Italy	-9.8	-11.9	-	-5.0	-7.3
Spain	-10.6	-4.8	-	-10.0	-4.0
Portugal	-5.5	-16.9	-	-2.0	-2.8
Greece	-9.7	-14.3	-	-8.0	-12.8
Malta	-	28.8	-	-19.0	-2.0
Cyprus	-	6.3	-	-4.0	-6.3
Czech Rep.	9.6	-5.3	-6.5	3.0	6.5
Slovakia	-7.6	-1.2	-13.7	-13.0	-1.8
Poland	-14.2	-5.1	-	-17.0	-12.8
Estonia	-22.8	-10.0	-	-7.0	0.0
Latvia	-44.8	-23.6	-	-15.0	3.0
Lithuania	2.2	-23.0	-	-12.0	-16.8
Hungary	-19.4	-13.6	-17.3	-7.0	-0.8
Slovenia	-10.5	6.3	-	-4.0	-3.3
Bulgaria	-12.4	0.2	-3.7	-20.0	-7.3
Romania	-67.2	-38.0	-	-29.0	-19.5
Croatia	-	-	-	-19.0	-10.0

Three thresholds are determined on the basis of the 20th, 80th and 90th percentile of the distribution of the indicator across countries:

	Score below threshold 20th percentile
	Score above threshold 80th percentile
	Score above threshold 90th percentile

(*) Percentage deviation from the average of the ratio over the period 1995-2016; (**) Percentage deviation from 'fundamental price' as determined by GDP growth (or disposable income when available), 10-year bond rate (or mortgage interest rate) and population (or households); (***) Similar approach as GEM model, but exact model specification may vary according to the characteristics of the country and data availability; (****) The average of four valuation metrics calculated by the ECB: (1) price-to-income ratio, (2) price-to-rent ratio, (3) bond-yield-to-rental-earnings ratio, (4) econometric model.

Source: KBC Economic Research



Household stretch dashboard

Apart from housing market overvaluation, the vulnerabilities in household stretches can be elevated as well. A high and increasing level of household indebtedness makes an economy more vulnerable to shocks and, therefore, forms a serious threat to macroeconomic and financial stability. Hence, it needs to be watched closely. Table 2 summarises a number of debt indicators for the EU28 countries into one single dashboard. Like the valuation dashboard discussed above, vulnerable countries are identified on the basis of setting thresholds that are determined by the distribution of the various indicators across countries. Countries belonging to the 90th, 80th and 20th percentile of the distribution of the indicator are red, orange and green, respectively.




The data suggest that concerns about household indebtedness in Cyprus, Denmark and the Netherlands are most warranted. The level of household mortgage debt in these countries amounts to (well) above 175% of household disposable income (red). Although the debt level is less worrying, the strong increase in it during the past years also suggests potential vulnerabilities in Slovakia, Sweden and Belgium (orange).

Despite the strong rise in the mortgage debt ratio, the financial position of Belgian households as a total remains very robust overall, as is evident from the ratio of financial assets to debts, which is one of the highest in the EU28.* The latter ratio is particularly low in Cyprus, Finland, Slovakia, Greece, Ireland and Luxembourg. Countries in Central and Eastern Europe generally score relatively well in terms in the different indicators (green). In this group, Slovakia has the highest debt position and the lowest financial assets-to-debt ratio.

Table 2 - Dashboard of household (HH) stretch in the EU28
(2016)

	HH total debt (% of GDP)	HH mortgage debt (% of HH income)	HH mortgage debt (% of HH income; change 2011-2016)	HH financial assets to debt (in %)	HH debt service to income ratio (in %)	Arrears on mort- gage or rent payments (in %)
	Source: ECB	Source: Eurostat	Source: Eurostat	Source: ESRB	Source: ESRB	Source: Eurostat
Belgium	59.7	101.4	11.8	500.2	10.7	3.2
Germany	53.1	63.9	-2.9	338.1	9.4	2.2
France	57.2	76.5	7.7	394.1	10.0	5.6
Netherlands	108.3	217.8	-14.7	296.7	21.5	3.2
Luxembourg	62.4	164.7	-	242.1	10.8	3.2
Austria	51.3	79.9	0.5	350.8	10.2	3.6
Sweden	85.6	138.9	9.9	333.4	16.0	2.3
Denmark	119.0	251.5	-19.9	248.5	20.4	2.0
Finland	67.1	74.1	3.1	210.9	11.4	4.9
Ireland	52.2	74.1	-42.4	237.3	19.9	1.5
UK	90.7	96.0	-20.8	372.9	18.4	3.8
Italy	41.5	32.4	-0.3	581.5	11.8	5.4
Spain	64.1	76.1	-17.6	275.8	12.9	5.2
Portugal	72.5	100.3	-21.3	269.5	16.4	4.4
Greece	60.2	81.2	5.4	218.3	21.6	15.3
Malta	53.2	-	-	462.8	12.8	2.4
Cyprus	122.7	184.1	6.7	206.0	28.8	8.0
Czech Rep.	30.8	56.8	9.0	360.4	8.2	2.4
Slovakia	38.3	60.6	20.5	213.9	10.0	3.5
Poland	37.6	55.8	9.4	268.6	13.4	1.1
Estonia	39.0	71.9	-10.3	270.4	7.6	2.0
Latvia	24.2	38.8	-29.6	430.8	5.7	2.7
Lithuania	22.2	35.8	-3.8	414.2	5.1	1.7
Hungary	20.2	15.3	-6.7	563.5	7.6	5.1
Slovenia	27.3	44.7	-2.3	367.4	5.8	3.1
Bulgaria	21.6	33.5	-2.5	552.6	8.1	2.1
Romania	14.6	21.7	-12.7	414.6	6.5	0.9
Croatia	36.8	28.2	-	302.7	8.8	1.2

Three thresholds are determined on the basis of the 20th, 80th and 90th percentile of the distribution of the indicator across countries:

	Score below threshold 20th percentile
	Score above threshold 80th percentile
	Score above threshold 90th percentile

Source: KBC Economic Research based on the sources mentioned in the table

It should be mentioned that the data in Table 2 may underestimate particular countries' vulnerabilities. For instance, in the case of mortgage debt, Eurostat's data exclude securitised loans, which may be quite important. Also, central bank data on arrears sometimes are higher than those registered by Eurostat's SILC survey. Ireland is a clear example where one should be cautious in interpreting the data used. Institutional features can moreover amplify property-related vulnerabilities. Many of them are related to mortgage lending. E.g., tax deductibility reduces the net costs for households of servicing their debt and gives them the incentive to borrow more. Similarly, a lengthening of mortgage maturities and easing of loan-to-value or debt service-to-income constraints may raise borrowing capacity considerably. It tends to encourage indebtedness, which is in turn related to higher house prices. Other features, like the prevailing type of interest rate, play a role as well. In a period of low interest rates, variable mortgage rates may induce households to take excessively big mortgages. When rates start rising during the life of the mortgage, debt servicing may be at risk. Table 3 shows the mentioned characteristics for the EU28 countries. From the set of countries that warrant attention, given conclusions drawn from the valuation and household stretch dashboard above, Sweden and the Netherlands, and to a lesser extent Denmark and Portugal, stand out as having features of mortgages with higher vulnerabilities. In particular, the typical mortgage maturity in Sweden is by far the highest in the EU, a feature that is combined with generous mortgage rate deductibility.

Table 3 - Mortgage market features in the EU28 (2015)

	Mortgage tax relief	Typical mortgage maturities (years)	Prevailing type of interest rate
Belgium	Bounded	21.4	Long term fixed
Germany	None	30.0	Medium term fixed
France	None	18.6	Long term fixed
Netherlands	High or Unbounded	29.7	Long term fixed
Luxembourg	Bounded and Limited	20.6	Variable
Austria	None	-	Variable
Sweden	High or Unbounded	41.2	-
Denmark	Bounded	27.2	-
Finland	Bounded	21.6	Variable
Ireland	None	26.4	Variable
UK	None	18.0	-
Italy	Bounded and Limited	21.9	Variable
Spain	None	22.7	Variable
Portugal	None	29.0	Variable
Greece	None	-	Variable
Malta	None	26.7	Variable
Cyprus	None	-	-
Czech Rep.	Bounded and Limited	-	Short term fixed
Slovakia	None	-	-
Poland	None	26.3	Variable
Estonia	Bounded and Limited	22.6	Variable
Latvia	None	16.2	-
Lithuania	None	21.0	Variable
Hungary	None	15.0	Variable
Slovenia	None	-	Variable
Bulgaria	Bounded and Limited	20.0	-
Romania	None	24.5	Variable
Croatia	None	-	-

Source: ESRB (2016)



EU house price simulation

In nearly all EU countries, the post-crisis housing market correction appears to be behind us. Recently, house price dynamics have again become quite strong in a majority of states. The question now arises as to whether these developments are sustainable and if the recovery will last in the years ahead. Looking into 2018, housing market activity in the EU will likely continue to expand amid still favourable lending conditions and an ongoing firm growth momentum in the broader economy. The ECB will continue quantitative easing, albeit at a reduced pace, until at least September 2018. This implies that any significant tightening of the ECB's policy stance is still distant. In our scenario, a first-rate hike by the ECB will likely be only in 2019.

Although this implies a rising rate environment, it should keep sovereign bond and mortgage interest rates, from an historical perspective, at relatively low levels for a while, too. Moreover, real GDP growth in Europe is expected to remain strong in 2018, thereby providing continued support to employment and income growth. Not only will the benign environment result in households continuing to buy property, it will also bring about continued appetite from investors. Both will underpin robust house price growth in most of the EU Member States in 2018.

From 2019 onwards, we expect house prices to rise more slowly in most markets, as some GDP growth moderation is likely and bond and mortgage interest rates will by then be on a clear upward trajectory. Increased residential investment and, hence, a more flexible housing supply will add to the forecast price slowdown. In several EU countries, housing investment has been particularly low for a prolonged period despite strong house price increases.

Planning, zoning and land use regulations have often been important supply side constraints to housing, restricting new residential construction. Due to the underinvestment and given relatively strong increases in the number of households, these countries are facing a large accumulated housing shortage, aggravating the house price increase. Very recently, residential investment is growing more dynamically again in most EU countries, however, adding to supply and likely curbing down price increases in the period ahead.

Table 4 - House price simulation in the EU28
(year-on-year % change)

	2016	2017	2018	2019
EU28	4.3%	4.4%	4.0%	3.5%
Euro Area	3.4%	3.6%	3.5%	3.0%
Belgium	2.6%	4.0%	2.5%	3.0%
Germany	5.9%	4.2%	3.5%	3.0%
France	1.0%	3.1%	2.5%	3.0%
Netherlands	5.3%	6.7%	3.5%	3.0%
Luxembourg	6.0%	6.6%	3.5%	2.5%
Austria	8.5%	4.8%	3.0%	2.5%
Sweden	8.6%	7.6%	4.0%	2.5%
Denmark	4.7%	4.7%	3.5%	3.0%
Finland	0.6%	1.6%	2.0%	3.0%
Ireland	7.5%	11.0%	7.0%	3.0%
UK	7.0%	4.8%	4.0%	3.0%
Italy	-0.8%	-0.2%	0.5%	1.0%
Spain	4.6%	5.5%	4.5%	3.5%
Portugal	7.1%	8.0%	5.5%	3.0%
Greece	-2.4%	-1.5%	0.0%	1.0%
Malta	5.6%	5.3%	4.5%	3.5%
Cyprus	0.3%	3.0%	2.5%	2.5%
Czech Rep.	7.2%	13.0%	6.0%	5.0%
Slovakia	6.7%	6.0%	5.0%	4.0%
Poland	1.9%	3.9%	3.5%	3.0%
Estonia	4.7%	6.2%	5.5%	3.5%
Latvia	8.5%	9.4%	6.5%	4.0%
Lithuania	5.4%	10.2%	7.5%	4.5%
Hungary	13.4%	6.5%	4.0%	2.0%
Slovenia	3.3%	7.1%	4.5%	3.0%
Bulgaria	7.0%	6.0%	5.0%	4.0%
Romania	6.0%	6.2%	5.0%	4.0%
Croatia	0.9%	1.9%	2.5%	2.5%

Source: KBC Economic Research

Based on the aforementioned economic scenario, we expect house prices in the EU to rise on average by 4.0% in 2018 and 3.5% in 2019, compared to an estimated increase of 4.4% in 2017. It is important to emphasize that risks to this scenario are mainly downward biased and include, e.g., a faster monetary policy normalisation, a hard Brexit or renewed worries about the stability of the European project.



Countries for which we have identified property-related vulnerabilities – i.e. elevated valuations and/or debt burdens - could deviate from the general price path. To prevent these vulnerabilities from further building up, macro-prudential authorities in these countries are likely to (further) tighten their policy stance, resulting in a stronger slowdown of price dynamics than envisaged for the total EU. This will particularly be the case in Sweden, Luxembourg and Austria (see Table 4). In our view, the risk of an eventual price correction is also the biggest in these countries. It is important to emphasize that the views expressed only reflect a simulation based on macro-drivers and do not account for country-specific factors which can play a hugely important role as well.

In the longer-term Europe's property markets will grapple with the various disruptive forces of demographics, technology and urbanization. The net impact on house prices is not always fully clear, though. One could argue, for instance, that less buoyant (in some countries even negative) population growth will temper house price dynamics in the coming decade. However, as referred to above, it is the number of households rather than total population that matters. The continuing fragmentation of the family, in addition to an increasing number of elderly singles, is likely to foster growth in the number of households and, hence, demand for housing. If the response on the supply side is not adequate, this could exacerbate price pressure on the secondary market. Changes in household numbers and structures stemming from migration flows can moreover contribute to housing boom/bust cycles, as witnessed, for instance, in Ireland and Spain in the past decade.

Finally, the more complex life-course of individuals and households is producing an ever-greater variety of housing needs. The mismatch between the diversity of life-courses and housing market developments will become more challenging. In particular, the growth in the number of single-person households (many of them elderly persons) is leading to much higher demand for smaller living units, like studios or service flats. Also, new living formulas, like multi-family housing, cohousing or fractional ownership, will likely gain popularity. As car-dependent lifestyles will become unattractively expensive, more people will moreover want to live in urban environments with high-density housing. Homes will be smaller, but closer to work, school and shopping. As a consequence, future price developments for different segments of dwellings will likely diverge more than they used to do in the past.

References

Central Bank of Ireland (2017), "A review of residential mortgage lending requirements", Box A1, 28 November 2017.

Du Caju, Ph. (2017), "Pockets of risk in the Belgian mortgage market: Evidence from the Household Finance and Consumption Survey (HFCS)", Working Paper Research NBB, nr. 332.

Égert, B. and D. Mihaljek (2007), "Determinants of house price dynamics in Central and Eastern Europe", Focus on European Economic Integration, nr. 1, pp. 52-76.

European Systemic Risk Board (2016), "Vulnerabilities in the EU residential real estate sector", November.



Hilbers, P., A. Hoffmaister, A. Banerji and H. Shi (2008), "House price developments in Europe: a comparison", IMF Working Paper, WP/08/211.

Sánchez, A. and A. Johansson (2011), "The price responsiveness of housing supply in OECD countries", OECD Working Papers nr. 837.

Philipponnet, N. and A. Turrini (2017), "Assessing house price developments in the EU", European Commission Discussion Paper nr. 047.

Rünstler, G. (2017), "House price cycles in the European Union: seven stylized facts", European Central Bank, Presentation at Lietuvos Bankas conference, 11 May 2017.

Van Gompel, J. and J. Van Goubergen (2017), "Sociodemographic change in Europe: general trends and crosscountry differences", KBC Economic Research Report, nr. 04.

Warisse, C. (2017), "Analysis of the developments in residential property prices: Is the Belgian market overvalued?", NBB Economics Review, June, pp. 61-77.