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Economic Research:

Europe's Housing Markets Continue To Recover Amid Extended QE

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Housing market activity in most European countries will continue to expand this year amid still very favorable lending conditions and the ongoing economic recovery. We nevertheless expect house prices will rise more slowly than last year in most markets as inflation edges up, potentially putting interest and mortgage lending rates on a gradually upward trajectory. The European Central Bank's (ECB's) announcement on Jan. 19 that it will continue its asset purchases (quantitative easing or QE) to at least the end of this year, should keep sovereign bond yields and mortgage interest rates low, thereby continuing to spur improvements in eurozone housing markets. Over the longer term, however, there are risks that the U.K.'s split from the EU, as well as the threat of increased protectionism in the U.S., could hit European growth, with a knock-on effect on housing markets.

We believe that uncertainties over the terms of the U.K. departure from the EU and the squeeze of accelerating inflation on households' spending power will translate into gradually slowing economic growth that will then spill over to the U.K. housing market. We expect house price increases in the U.K. to soften to 2% this year, from 7.5% in 2016. However, favorable financing conditions and persistent supply shortages should prevent house price inflation from entering negative territory.

Overview

- We forecast house prices will continue to rise in most European markets this year amid still very favorable lending conditions and the ongoing economic recovery, including rising employment.
- We nevertheless expect the markets will see slower gains, owing to rising inflation and external pressures on growth.
- We expect the strongest house price gains this year will be in Ireland (7%), Germany (6%), and the Netherlands (5%).
- Italy's housing market will likely be the weakest performer (zero growth) due to uncertainties about the economic and political outlook.

We expect the German housing market will continue to experience among the strongest price inflation rates, up 6% in 2017, supported by a buoyant labor market and a shortage in housing supply. This is nevertheless slower than the year-on-year growth of 9.6% for 2016, as interest rates may start to increase. We see more room for price growth in this market given that affordability measures (price-to-income and price-to-rent indices) are still below the long-term average.

Some markets that experienced significant house price slumps in the wake of the 2008/2009 financial crisis are now recovering strongly. In Ireland, we forecast house price inflation of 7% this year, and we see more room for growth of 5% year on year in 2018, underpinned by shortages in key areas, continued improvement in the labor market, and measures to help first-time buyers onto the housing ladder. The Dutch housing market is also experiencing a

spectacular recovery after a prolonged price correction of 20% between 2008 and 2013. We forecast continued rises of 5% and 3%, respectively, this year and next. Similarly, Spain's housing market is recovering well, and we forecast 2.5% price growth this year after an estimated 4% in 2016, on solid economic growth and a recovering jobs market.

We forecast that low interest rates, improving labor markets, and tight supply will also maintain solid price gains in Belgium of 3% this year, and will keep French house prices growing at 2% in 2017, despite a patchy economic performance.

Only in Italy do we think the weak economy will keep prices flat over the next two years (zero growth), despite the support that ultra-low interest rates are providing. We also predict zero growth for Switzerland's housing market this year, held back by regulatory measures and already high residential property prices.

Table 1

| European Housing Market Forecasts | | | | | | |
|---|------|------|------|-------|-------|-------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | | | | | | |
| Belgium | 1.1 | 0.9 | 1.5 | 3.5 | 3.0 | 1.0 |
| France | -1.9 | -2.5 | -0.5 | 2.0 | 2.0 | 0.0 |
| Germany | 5.0 | 2.8 | 4.8 | 9.6 | 6.0 | 5.0 |
| Ireland | 7.9 | 19.0 | 4.3 | 6.3 | 7.0 | 5.0 |
| Italy | -5.3 | -3.6 | -1.7 | -1.0 | 0.0 | 0.0 |
| Netherlands | -4.4 | 2.0 | 4.8 | 6.0 | 5.0 | 3.0 |
| Portugal | 0.6 | 2.2 | 5.0 | 7.5 | 4.0 | 3.0 |
| Spain | -6.2 | 1.9 | 4.3 | 4.0 | 2.5 | 2.0 |
| Switzerland | 4.6 | 0.4 | 2.3 | 1.5 | 0.0 | 1.0 |
| U.K. | 4.5 | 8.5 | 6.4 | 7.5 | 2.0 | 0.0 |

e--Estimate. f--Forecast. Sources: S&P, OECD, Hypoport.

Belgium: Employment Gains Should Underpin Modest Price Rises

Low interest rates and an improving labor market in Belgium should underpin solid demand in the housing market. We expect house prices to grow moderately in the next two years, remaining resilient to changes in mortgage loan taxation. We forecast nominal home price rises of 3% this year (see table 2) after an estimated 3.5% in 2016.

Recent trends

House price rises accelerated in 2016 after growing modestly in 2015 (+1.5%) and nearly stagnating in 2014 (+0.9%). Property prices increased by close to 3% year on year in the third quarter of 2016. Resilient economic fundamentals and very favorable financial conditions continued to underpin the market.

Transaction volumes in 2016 recovered slowly from their 2015 low (see chart 1). Still, in the 12 months to September 2016, housing sales growth remained negative, at -5.6% for Belgium as a whole, after a 22% drop in 2015. The decline was more pronounced in some regions than others, with the Brussels region seeing falls of -11.4%, while sales in the Flanders and Wallonia regions fell only 5.4% and 4.0%, respectively. Transaction volumes in Flanders have been only

slowly rising since their plunge in January 2015, when households rushed to purchase houses ahead of less generous tax treatment of mortgages that took effect on Jan. 1, 2015. Wallonia and Brussels applied similar tax changes in January 2016 and January 2017, respectively. This could have been expected to encourage potential buyers to rush to buy before these dates. Yet this was not the case, particularly in Brussels, where the taxation of mortgage loans, commonly referred to as the "Housing Bonus", has been scratched, but has been partly offset by a reduction in registration duties.

The Belgian economy has shown resilience and we expect GDP to have grown modestly by 1.3% last year after 1.5% in 2015. The labor market is slowly healing, with numbers showing strong job gains. Employment expanded by 1.4% year on year in Q3 2016, the fastest rate in five years. As a result, the unemployment rate edged down to 7.6%, its lowest level since July 2012. The healthier labor market has supported household income, albeit only modestly. Real wages were hampered by a rise in inflation, hovering around 2% since June 2016 (owing to a rise in indirect taxes and an increase in tuition fees in the Flanders region) and the wage-moderation measures implemented by the government to preserve cost competitiveness. As a result, Belgium has been underperforming its eurozone peers, which experienced higher consumer spending growth.

Alongside solid economic fundamentals, low interest rates have increased households' borrowing capacity. Mortgage interest rates have fallen continually over the past years, reaching an all-time low of 1.99% in November 2016 (see chart 3). The low rates are making the housing market more affordable. The latest estimate of affordability measures, such as the price-to-income and price to rent ratios, pointed to an overvaluation of about 40%-45% of the market in September 2016 (see chart 4). Indeed, residential property prices have been increasing much faster than incomes or rents for three decades. However, the very large decline in interest rates between 2008 and June 2016 nonetheless increased households' purchasing power by 15%, according to a study by Le Credit Foncier.

What's more, prices have remained affordable in absolute terms on an international comparison. In Brussels in particular, the average home sales price was around €290,000 as of September 2016, compared to about €415,000 in Paris and £480,000 in London. Our housing affordability index, which measures the degree to which a typical family can afford the monthly mortgage payment on a typical home, shows that the average family income in Belgium was 130% of the income necessary to qualify for a conventional loan, covering 80% of an average-priced home, as of September 2016. However, even if the position of households remains robust overall, microeconomic data shows that income and assets are unevenly distributed among households. In June 2016, the National Bank of Belgium (NBB) board decided to introduce additional macro-prudential measures targeting the riskier housing loans, i.e. with a loan-to-value higher than 80%.

Future trends

Despite sizable uncertainties, we expect the Belgian economy will remain resilient, but record only timid economic growth this year. The main engine of growth will continue to be domestic demand, with household spending playing an important role. The labor market recovery is likely to gain some speed, thereby providing support to household income. The government tax shift and labor market reform are likely to help employment to rise by reducing labor costs and giving more flexibility to firms' negotiations. In addition, these measures will further enable enterprises to regain some lost competitiveness, putting exporters in a better position, while increasing employees' net incomes. Meanwhile, the continuing ECB expansionary monetary stance, in addition to strong corporate balance sheets and

high capacity utilization, is likely to continue to underpin credit growth and business investment.

Nevertheless, the U.K.'s Brexit negotiations and the threat of increased protectionism in the U.S. might bring important risks for Belgium given that it is a small open country that strongly depends on external demand. Belgium has among the highest exposures to the U.K. in the eurozone via the trade channel, given that 9% its exports of goods and services went to the U.K. in 2015. As a result of greater uncertainties surrounding the fallout from Brexit, that could hit trade and investment activity, we expect real GDP growth to range between 1.2%-1.3% in the next two years.

Two main factors will likely underpin a solid demand in the housing market: low interest rates and further improvements in the labor market. We expect house prices to grow moderately in the next two years, and show certain resilience to changes in the taxation of mortgage loans.

Long-term sovereign bond yields have been increasing slightly since late September 2016, owing to the rise in inflation expectations and following the victory of President Donald Trump in the U.S. elections, who is promising fiscal stimulus. Belgian 10-year government bond yields rose to close to 1.0% at the start of February, up from 0.1%. However, the continued ECB asset purchase program is likely to keep a cap on the rise in yields, in our view. The ECB confirmed on Jan. 19 that it would extend its QE program at least until the end of December 2017.

Looking forward, the ECB is unlikely to taper off its QE program before there is a sustained adjustment in core inflation across the eurozone, which in our view is unlikely to happen before 2018. We expect the ECB to extend the program, albeit at a reduced pace, scaling down asset purchases very gradually until December 2018. As a consequence, mortgage interest rates in Belgium are likely to remain low, thus keeping housing loans affordable, while the environment of low interest rates will continue to incentivize investors to purchase residential properties, profiting from higher rental returns than sovereign yields.

Table 2

| Belgium Housing Market Statistics | | | | | | | |
|--|-------------|-------------|-------------|--------------|--------------|--------------|--|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f | |
| Nominal house prices (% change year on year) | 1.1 | 0.9 | 1.5 | 3.5 | 3.0 | 1.0 | |
| Real GDP (% change) | -0.1 | 1.7 | 1.5 | 1.3 | 1.3 | 1.2 | |
| CPI inflation (%) | 1.2 | 0.5 | 0.6 | 1.8 | 1.9 | 1.5 | |
| Unemployment rate | 8.5 | 8.6 | 8.5 | 8.1 | 7.8 | 7.6 | |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, Banque Nationale de Belgique, OECD.

Chart 1

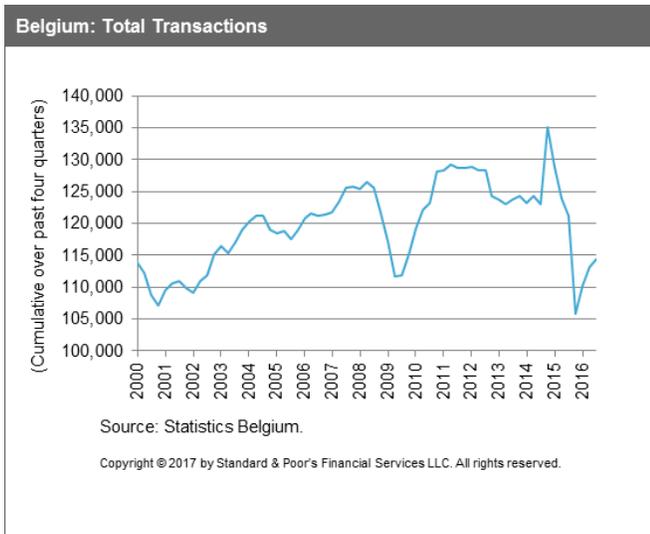


Chart 2

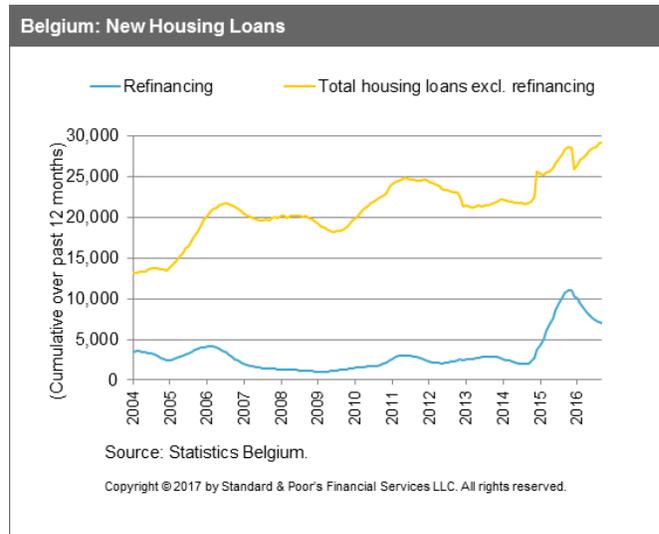


Chart 3

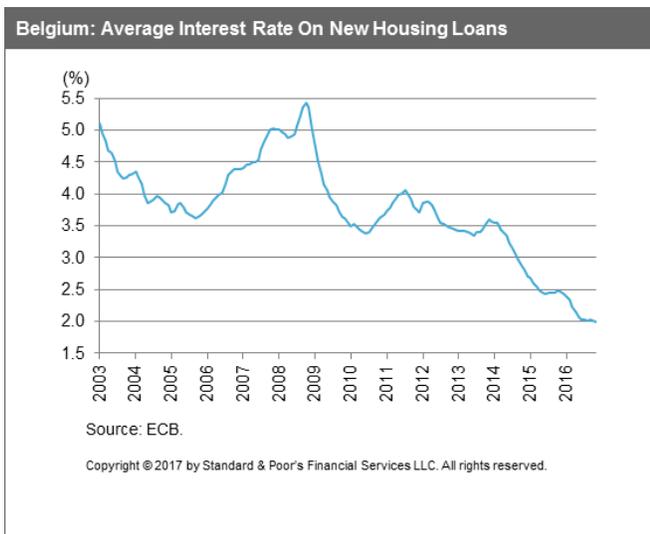
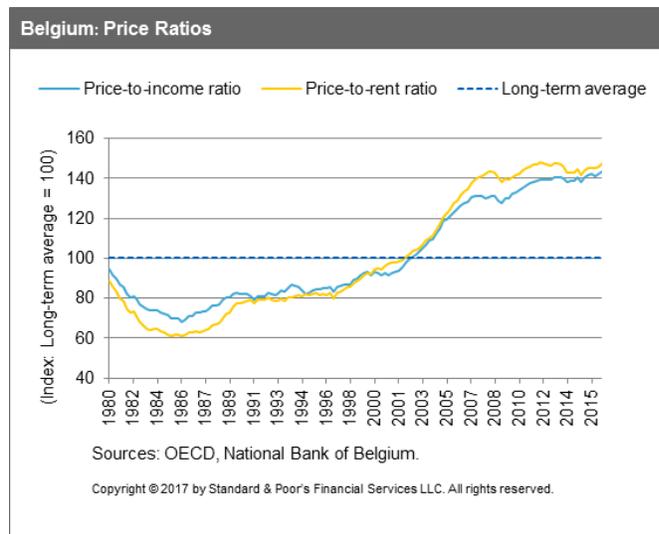


Chart 4



France: Low Interest Rates Lift Housing Transactions

In an environment of mixed economic signals, we believe house price growth in France will depend on the continuation of low interest rates over the next 12-24 months. While the ECB's continued asset purchases should keep a lid on rate rises, home loan rates are back on the ascent. The Presidential elections in April and May could also keep the housing markets in suspension mode. On balance, we forecast house price rises of 2.0% this year, the same as in 2016, slowing to zero growth in 2018.

Recent trends

The economic recovery remained patchy through 2016. After a very robust first quarter (0.6% growth), the following two quarters disappointed. Activity contracted in the second quarter and experienced a small 0.2% hike in the following three months. Inventories were the main growth drivers, while net foreign trade made a negative contribution to GDP growth as imports surged despite the weak euro exchange rate. The strong import elasticity to domestic demand remains a structural weakness for the French economy: a boost in domestic demand, especially household consumption, generally tends to benefit foreign importers proportionally more than domestic producers.

Nevertheless, more encouraging signals appeared in the final quarter of the year. The revival in the manufacturing sector suggests that business investment is now recovering. Crucially, residential investment continued to improve after several years of contraction. This key engine of growth should provide a boost to the economy in 2017. Meanwhile, the unemployment rate fell to 9.5% in November, its lowest since 2012, pointing to a rebound in employment growth in the fourth quarter. By way of comparison, net job creation in the private sector recorded between 2012 and Q3 2016 was 319,000 in France, well behind Germany (976,000) but ahead of Spain (214,000) and Italy (-214,000). The rapid decrease in unemployment in the second half of last year underpinned a rebound in consumer demand. While we still do not have final estimates for Q4, it appears that overall growth in 2016 may have averaged 1.1% (1.2% a year earlier).

Despite the shallow economic growth, 2016 turned out to be a very strong year for the residential real estate market. Sales of previously owned homes amounted to about 860,000 (after 803,000 a year earlier). Very low interest rates were the key drivers. Rates continued to fall in line with French long-term sovereign rates to reach historical lows of about 1.34% by year-end. Credit Foncier, a specialized bank, calculated that the drop in interest rates between 2008 and 2016 increased home buyers' purchasing power by 29%. Added to this, housing remained the most attractive investment for retail investors because financial savings products offer very low returns. Buoyant market activity did not, however, translate into a sharp increase in prices. In the 12 months to September, nominal prices were up 1.6% (-1.9% a year earlier). Realtors' estimates suggest that for the year as a whole prices increased by about 1.8%, close to the 2.0% forecast we published in our August 2016 release. Household debt reached 65% of disposable incomes, compared to 30% in 2000. Average prices for previously owned dwellings corresponded to 4.04 years of income at the end of 2016 compared to 3.86 years in 2015.

Future trends

The economy entered 2017 with stronger headwinds. While inflation is set to rise to 1.3% this year on the back of higher oil prices, and a weak euro exchange rate and could slow the recovery in domestic demand, a further reduction of slack in the labor market should provide support to consumer demand. At the beginning of the year, consumer confidence was at its highest level since 2008. In the same vein, business investment, which underperformed last year, should pick up this year and next as capacity utilization remains on an upward trend. Added support should come from the government's pro-business measures (tax credits for competitiveness and employment, the responsibility pact, and the cut in corporate tax rates). We also expect the recovery in the construction sector to gain momentum this year. On the other hand, export performance has been disappointing. Despite a pick-up in world trade growth and continued weakness in the euro exchange rate, we expect net foreign trade's contribution to growth to be modest in 2017 and a bit more tangible in 2018. Overall, we expect real GDP growth to reach 1.3% this year and 1.4% in 2018 (see table 3).

Against this backdrop, the housing market outlook will heavily depend on the path interest rates will follow. At the end of last year, signs emerged of a turn in long-term yields driven by a surge in U.S. bond yields after the presidential elections and prospects of higher inflation in developed economies. Markets expect the new administration to implement a fiscal stimulus equivalent to about 1% of U.S. GDP (\$200 billion). The contagion to European rates so far has been limited. The ECB's continued presence on the markets with its public sector purchase program is effectively deterring sudden jumps in long-term yields.

Nevertheless, it is fair to assume that after hitting historical lows in 2016, interest rates applied to housing loans are now back in an ascending mode. We expect French sovereign bond yields to gain about 60 basis points (bps) in 2017 and an additional 40 bps in 2018. This would raise interest rates on housing loans to still moderate levels by historical standards. In the short term, the bottoming out in yields is likely to boost transactions and market activity, as potential buyers will rush to take advantage of still very attractive credit conditions. On the other hand, it could also drive potential sellers to bring forward their decision to sell for symmetric reasons (fears that higher rates dry up demand). On net, we would expect a slight acceleration in price increases in the first half of the year, followed by a gradual stabilization.

Two additional factors could affect the outlook for the French housing market. The first is the the potential impact of the presidential elections in late April and early May. Traditionally, election times have been associated with wait-and-see behavior on the market. So far, little has been said by the various candidates about possible changes in fiscal regulations on housing (a typically popular topic in past campaigns), but it is still early days.

The second factor would have a longer term impact, as it relates to Brexit. In the period 2005-2015, foreign buyers represented 6.4% of the transactions of previously owned homes, a third of them British buyers. The weaker pound and uncertainties about the future status of British residents in the EU could weaken that component of demand for dwellings, especially in the southern half of the country. Interestingly, a survey carried out in September 2016 by Credit Foncier among housing market participants (realtors, promoters, asset managers) revealed that 67% of them thought Brexit would have no impact at all on the market. We find this result somewhat counterintuitive, since the weaker pound in particular should be a strong incentive for British owners of a home in France (or elsewhere in the eurozone for that matter) to sell their property and, conversely, a strong disincentive for potential buyers coming from the U.K.. The future will tell whether the attraction of living in Provence or Dordogne won over the higher price associated with it.

Table 3

| France Housing Market Statistics | | | | | | | |
|--|------|------|------|-------|-------|-------|--|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f | |
| Nominal house prices (% change year on year) | -1.9 | -2.5 | -0.5 | 2.0 | 2.0 | 0.0 | |
| Real GDP (% change) | 0.6 | 0.7 | 1.2 | 1.1 | 1.3 | 1.4 | |
| CPI inflation (%) | 1.0 | 0.6 | 0.1 | 0.3 | 1.3 | 1.4 | |
| Unemployment rate | 10.3 | 10.3 | 10.4 | 9.9 | 9.6 | 9.4 | |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, OECD, INSEE.

Chart 5

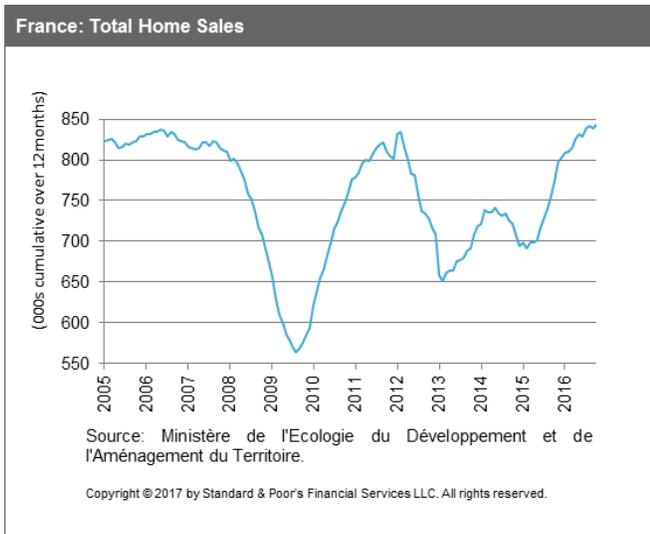


Chart 6

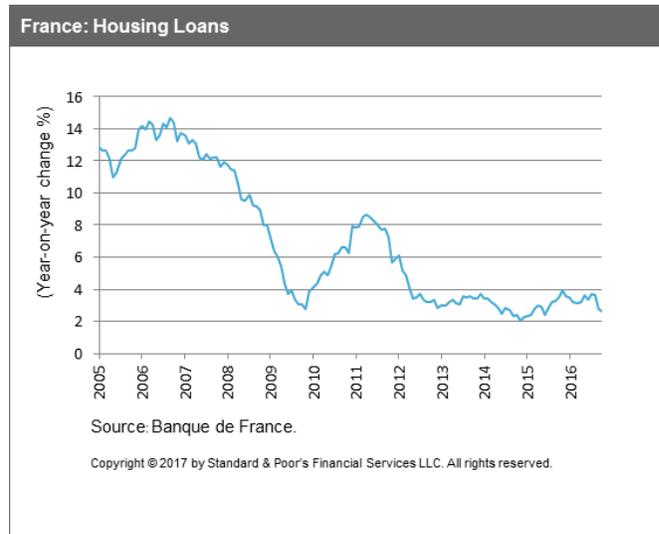


Chart 7

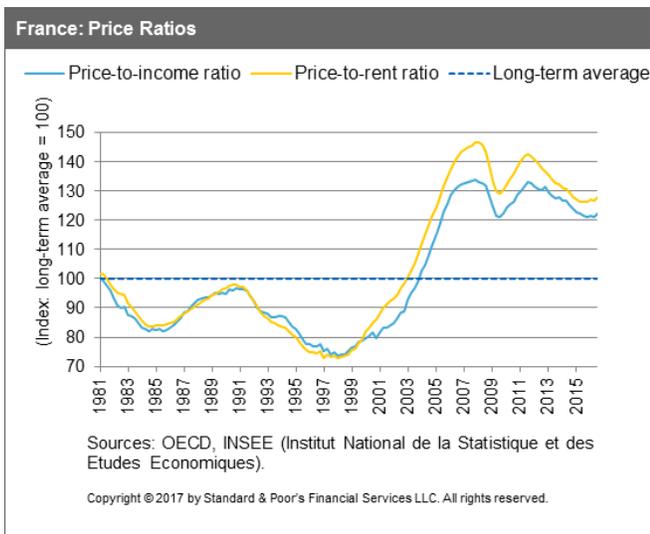
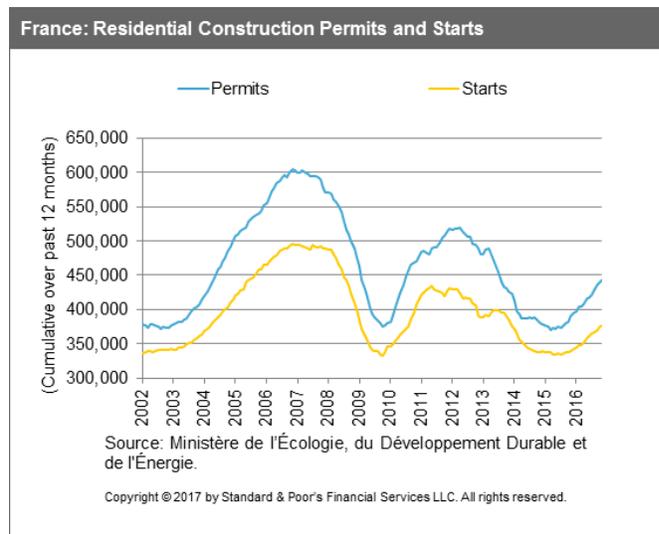


Chart 8



Germany: Attractive Financing And Tight Supply Fuels Price Rises

Rising demand, fueled by a very buoyant labor market, affordable prices, very positive financing conditions, and a shortage in housing supply should continue to support price rises in the German property market over the coming two years. However, we project the upward trend will slow this year as interest rates start to gradually increase. After nominal house price rises of nearly 10% in 2016, we expect they will decelerate to 6.0% this year and to 5.0% next year (see table 4).

Recent trends

German residential property prices have continued to rise unabated, after seven years of expansion. According to Hypoport statistics, prices accelerated significantly in 2016, expanding by 9.6% after a 5% rise in 2015. Larger price rises were recorded in major cities: Munich in particular experienced the most dynamic increase, owing to its fast-rising population and record low vacancy rate of 0.2% in 2015. Despite these significant increases, the German housing market is far from overheating. It was undervalued for years, as prices were stagnant for more than a decade despite an improvement in household incomes. Measured by affordability ratios, such as price-to-income and price-to-rent indices, German residential property prices are only nearing their historical average, meaning that prices are now close to normalization (see chart 10). Credit Foncier, a specialized bank, calculated that despite the large increase in prices between 2008 and 2016, the drop in interest rates led homebuyers' purchasing power to increase by 5%.

A nationwide shortage in combination with high immigration and very low interest rates continues to fuel prices in the country. Net immigration reached 360,000 people in the first half of 2016 after 1.1 million in 2015 as a whole. While the inflow of civil war refugees and asylum seekers from Syria and Afghanistan meaningfully decreased last year, it has stayed at a relatively high level compared to previous years.

The very positive lending conditions are also fueling demand for housing. Low mortgage interest rates are incentivizing Germans to become property owners. Interest rates fell to the historically low level of 1.62% in October 2016, from 2.0% one year ago (see chart 11). This was accompanied by a surge in lending to first-time buyers, in particular. Housing loans were up 3.7% year on year in November 2016, an acceleration from the past years (see chart 9).

At the same time, residential property construction output surged last year to respond to the increase in demand. The number of permits issued for residential buildings picked up by a significant 23% in the 12 months to August 2016 after an 8% increase in 2015 (see chart 12). However, new home completions are set to reach 300,000 for the first time only in 2017, according to Deutsche Bank, which is below the 350,000 new homes minimum that are needed, according to new estimates by the German government. Indeed, due to the large flows of immigrants in late 2015, estimates have been revised upward significantly.

As a result, the expansion of supply is still unlikely to fulfil the gap that has accumulated in recent years, especially in the largest cities. Demand for housing has been increasing strongly since 2009, and construction activity has been slow to respond, creating a supply shortage. According to the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), the dwellings gap at end-2014 was an estimated 1 million. The gap between recent new supply and needs appears to be more acute in the so-called affordable segment for low- and middle-income households.

Future trends

We expect the German economy to remain resilient, growing by around 1.3% to 1.4% over the coming two years. Last year, activity proved it could weather quite well multiple external headwinds, owing to the good performance of domestic demand. Real output growth is likely to have accelerated to 1.9% despite the Brexit vote, the U.S. presidential elections outcome, and the subdued global trade growth, which more than halved in 2016. Low inflation

supported consumer purchasing power, and household spending is likely to have risen by 1.7%. Meanwhile, the high number of refugee arrivals—expected to have increased by 4% last year, the highest growth since 1992 and the reunification years—has lifted government consumption.

We expect domestic demand will continue to be the main economic engine because we project the loss in momentum in Europe will weigh on German exports. Trade and investment should be negatively affected as a result of the uncertainty surrounding the post-Brexit negotiations between the U.K. and the EU. Britain is expected to trigger Article 50 of the Lisbon Treaty to start the country's exit from the EU negotiations by the end of March. The U.K. is Germany's third-largest export destination and accounted for 21% of the total German trade surplus in 2015, according to Comtrade. On the positive side, uncertainties related to a possible move of some operations from the financial services center of London to Frankfurt has certainly driven up prices since last year in the German city, where prices rose sharply (+11.8% in 2016 compared with 6% in 2015).

Housing demand will be supported by very a healthy labor market. Although the economy is close to full employment, employment growth should remain robust thanks to work migration, which should ease some labor shortage. The integration of refugees to the German labor market will be key to boosting output in the longer term. Meanwhile, real wages are likely to improve as a result of the tightness of the labor market and the 4% increase in the minimum wage as of January 2017.

Meanwhile, households will continue to enjoy very favorable financial conditions, despite the recent upward trend in long-term interest rates. German sovereign bond yields moved up from their historical lows after October 2016 on the back of expected inflation rises. Headline annual inflation surged to 1.6% in December 2016 from 0.7% in November. This upward trend in yields was reinforced after U.S. President Trump's electoral win in November. Since the beginning of February, however, Bund yields have retreated somewhat, to 0.194% on Feb. 7, from 0.236% a month earlier.

The still very accommodative monetary policy of the ECB, along with the heightened uncertainty following the U.K. vote, the Trump administration's new economic policies, and elections across the EU, are capping the rise in long-term interest rates in safe-haven assets, such as German sovereign bonds. We expect German sovereign bond yields to gain about 60 bps in 2017 and an additional 40 bps in 2018. This would increase interest rates on housing loans, but still at moderate levels by historical standards.

While the surge in German December inflation has raised calls for higher interest rates by more hawkish policymakers and by politicians, the ECB is likely to stay dovish for a long time, despite the increase in price pressures, in our view. With core inflation remaining subdued, the ECB could choose to look through the rise in energy inflation as "temporary." Monetary policy is likely to remain accommodative until core inflation experiences a sustained adjustment of its path, probably not before 2018.

The results for the German housing market are twofold. First, mortgage interest rates are likely to stay at a low level, hence supporting household borrowing capacity and demand for housing loans. Second, yield spreads over sovereign bonds offered by rental returns are likely to remain attractive. The extremely loose financing conditions will remain a predominant factor supporting the rise in house prices. This suggests that demand will remain high and that, with

supply being low, house prices will continue to rise.

However, risks of a housing credit bubble are not likely to materialize over our projection horizon. Over the past few years, the strong decline in interest rates did not lead to a pronounced jump in lending volumes. As a result, and relative to economic growth, mortgage loans have stabilized at about 35% of GDP. This is because the housing market in Germany is structurally conservative: lenders typically demand a 30% down payment, while mortgage lending rates are usually fixed at about 10 years. Added to this, home ownership is low, at 53% compared to 65% in France and the U.K., and 73% in Italy, according to Eurostat. The rental market, meanwhile, is large and highly regulated. German households have typically favored rentals, but home ownership should increase in the coming years due to the incentives for tenants to purchase real estate in the currently low-interest-rate environment.

Table 4

| | 2013 | 2014 | 2015 | 2016 | 2017f | 2018f |
|--|------|------|------|------|-------|-------|
| Nominal house prices (% change year on year) | 5.0 | 2.8 | 4.8 | 9.6 | 6.0 | 5.0 |
| Real GDP (% change) | 0.6 | 1.6 | 1.5 | 1.9 | 1.4 | 1.3 |
| CPI inflation (%) | 1.6 | 0.8 | 0.1 | 0.4 | 1.6 | 1.6 |
| Unemployment rate | 5.2 | 5.0 | 4.6 | 4.2 | 4.2 | 4.4 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, Hypoport, Federal Statistics Office.

Chart 9

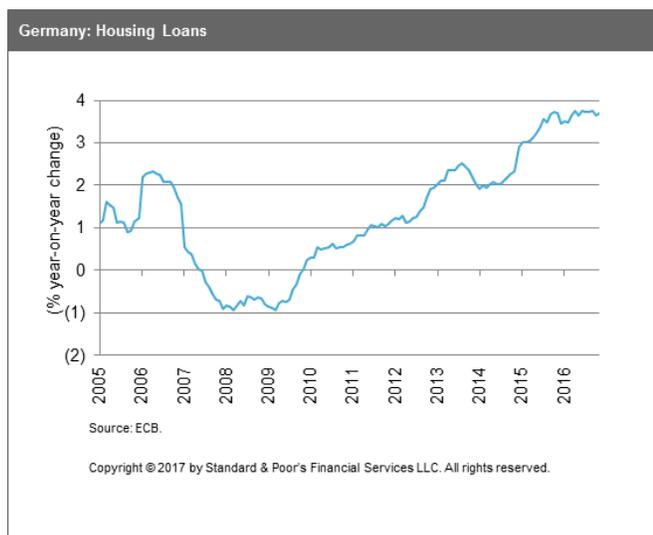


Chart 10

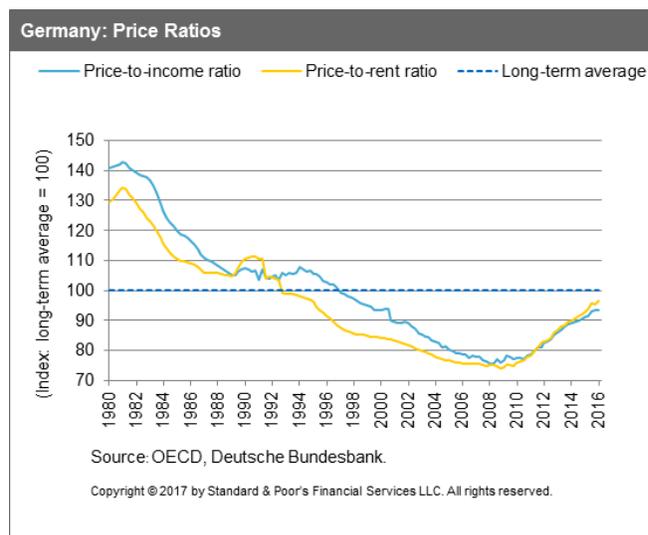


Chart 11

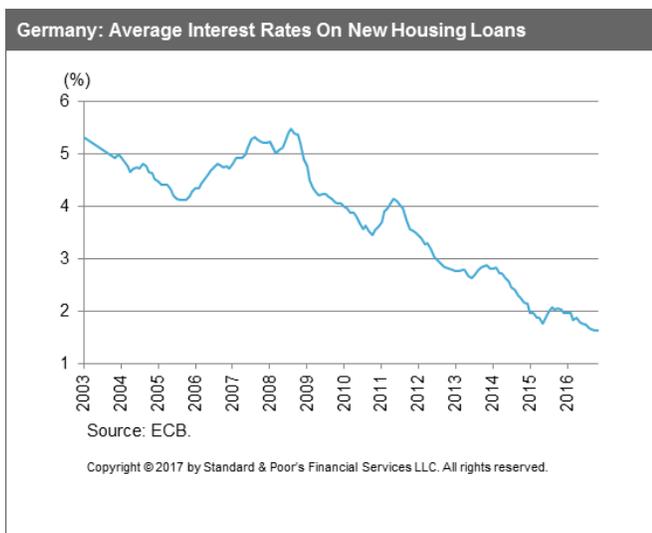
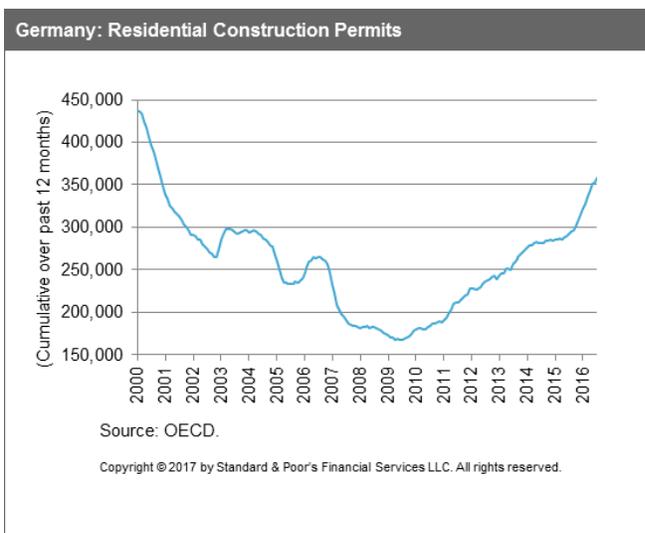


Chart 12



Ireland: Robust House Price Inflation Continues

The Irish housing market remains impaired by crisis legacy issues. House price growth, however, should remain robust, underpinned by shortages in key areas, continued improvement in the labor market, and as help-to-buy and looser mortgage lending rules for first-time buyers are starting to have an impact. We forecast house price inflation of 7% this year and 5% next year.

Recent trends

We estimate the Irish economy grew by 3.5% in 2016, a very robust rate when compared to growth in the rest of Europe. This strong GDP growth was to a large extent driven by the recovery in household consumption, which in Q4 last year is likely to have come close to, or even surpassed, pre-crisis levels. Strong household consumption, in turn, came on the back of the ongoing improvement in the labor market, where the unemployment rate reduced significantly by 1.4 percentage points to 7.1% in January 2016 from a year earlier. Moreover, while the earlier recovery was mostly limited to jobs growth, it has since recently broadened to real wages, helped also by very low inflation.

The boost to households' spending power, in particular in 2015 when economy-wide real disposable income rose by 4.6%, helped underpin the robust upward trend in house prices. In November last year, house prices stood 8.2% higher than a year earlier, and we estimate they have increased by 6.5% for 2016 as a whole. As the economic recovery continues to broaden from Dublin to the rest of the country, the catch-up outside of Dublin has led to price increases of well above 10% in some regions, which is driving the strong dynamics in the national price average. In Dublin, where house prices are highest so that buyers more often feel the bite of tighter macroprudential rules such as caps on loan-to-value and loan-to-income ratios introduced by the Central Bank of Ireland in 2015, house prices increased by a more moderate 5.6% on the year in November. The rate could have been softer, had not institutional investors continued their activity on the Dublin market, making up 20% of the transactions in 2016.

Despite the overall robust economic picture, the broader housing market remains somewhat impaired as a result of the

financial crisis, and it will take more time to work off these legacy issues. Households have made good progress in deleveraging, with the economy-wide debt-to-disposable income ratio falling to 150% in Q1 2016 (according to the central bank), down from 170% a year earlier, and from above 230% at its peak in 2009. Despite this remarkable improvement, household debt remains very high compared to most European economies, and deleveraging will need to continue for the situation to normalize.

With house prices in 2016 still 30% below their peak, many households remain in negative equity, unable to move on. At the same time, those that took out tracker contracts, which currently have rates at around 1%, well below the 3.6% average flexible rate, are also stuck where they are, as they would lose the benefit of low payments. This generates undesirable rigidities on both the labor and housing market. The latter also contributes to very low stocks for sale on the market. This is estimated at about 2% of total residential stocks, well below the 3.5-4.5% that would be considered normal in an otherwise relatively flexible market such as Ireland. As a result, bidders compete for a very limited stock, further increasing price pressures.

Against the background of still high household leverage, negative equity, inability or reluctance to move, stock limitations, and macroprudential rules introduced in the aftermath of the crisis, overall demand for mortgages remains more muted than supply offered by banks that are increasingly able and willing to lend again.

The burst of the real estate bubble also left the construction sector decimated, in particular home builders. Following the crisis, private investment in housing, in real terms, had fallen by a staggering 80% from its peak in early 2006 to its trough in 2012. The recovery is now on the way, but from very low levels. It will likely take a decade or so to recover to equilibrium levels. Several years of extremely low investment in dwellings in turn have contributed to the build-up of pronounced shortages in key areas, particularly in Dublin, and will be an important driver of prices in the foreseeable future.

Future trends

In the absence of major Brexit-related disruptions, there seems scope for further improvements in the labor market, with a continuation of robust growth in wages and, to a somewhat lesser extent, in jobs. Reflecting the strength of the labor market, net immigration in 2016 turned positive again for the first time since the crisis, albeit only marginally so. Although we do not expect net migration will return to average levels of 50,000 a year, as seen in 2000-2008, it should remain at least moderately positive over the next few years. The resulting extra formation of households, with a relatively high share in employment, should exacerbate the housing shortage over the forecast horizon.

The provision of new homes to the market is improving at very robust rates, albeit from low levels. Completions of new houses in 2016 were up an estimated 18%, and the positive trend in planning permissions and housing starts suggest similarly robust growth is in the pipeline. However, while we think completions in 2016 could have totaled between 14,500 and 15,000 units, the highest since 2010, they are still well short of official estimates of the required 25,000, and a further acceleration would be needed to significantly relieve demand pressures in the medium term.

Given that the housing shortage is set to remain a key characteristic of the market over the forecast horizon and beyond, any policy that stimulates demand will first stoke house prices inflation in the short term, before relatively inert supply responds in the medium term. This will also be the--partly intended--effect of the government's new help-to-buy scheme, active since January, as well as of more relaxed mortgage lending rules for first-time buyers put in

place by the central bank late last year.

The key feature of the help-to-buy scheme is an income tax rebate worth 5% of the value of the home (up to €20,000), and applies exclusively to the purchase of new builds. The rebate helps buyers raise a deposit and so facilitates access to the market. However, the restriction to new builds aims to stimulate the provision of new homes. The central bank's move to somewhat more relaxed loan-to-value ratios for first-time buyers to a uniform 90%, from a staggered one (90% up to a value of €220,000, 80% thereafter), should also first translate into upward pressures on prices, despite the unchanged loan-to-income cap of 3.5x, as there is upward scope from the 2.9x average in the first half of 2016. These measures, specifically aimed at improving access for first-time buyers, should have a noticeable impact on prices, given that first-time buyers make up around 50% of all mortgage-financed transactions (according to the central bank's Household Credit Market Report published in November 2016).

The government's action plan on housing in July last year set out ambitious and broad reforms of the housing market as well as shorter-term measures, including facilitating access to finance for developers and builders, and public investment in supporting infrastructure. In addition to measures aimed at boosting supply to 25,000 a year, the government itself aims to commission the construction of 26,000-37,000 new social housing units by 2021. These targets look ambitious, in view of the capacity impairment that the homebuilding sector suffered in the aftermath of the crisis. The sector is very investment-intensive and will need time to recover. As a result, shortages should persist over the medium term, despite a gradual recovery in household finances, and continue to underpin robust house price growth.

Table 5

| Ireland Housing Market Statistics | | | | | | |
|--|-------------|-------------|-------------|--------------|--------------|--------------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | 7.9 | 19.0 | 4.3 | 6.3 | 7.0 | 5.0 |
| Real GDP, % change | 1.1 | 8.5 | 26.3 | 3.5 | 3.0 | 3.0 |
| CPI inflation (%) | 0.5 | 0.3 | 0.0 | 0.0 | 1.0 | 1.4 |
| Unemployment rate | 13.1 | 11.3 | 9.4 | 8.0 | 7.7 | 7.2 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, OECD, Central Statistics Office.

Chart 13

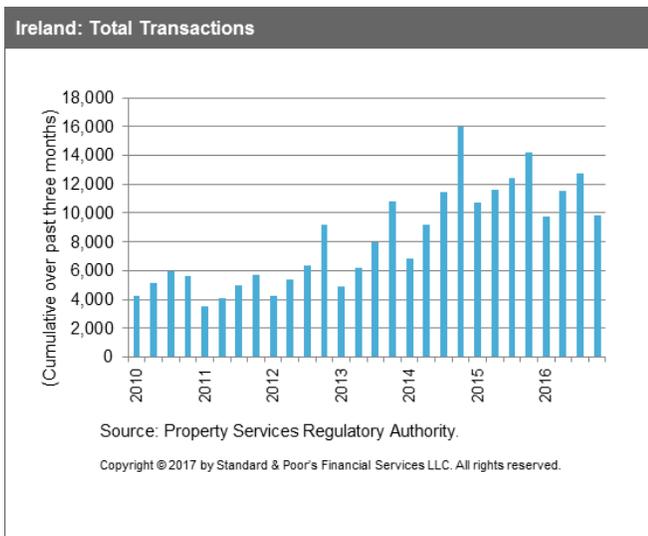


Chart 14

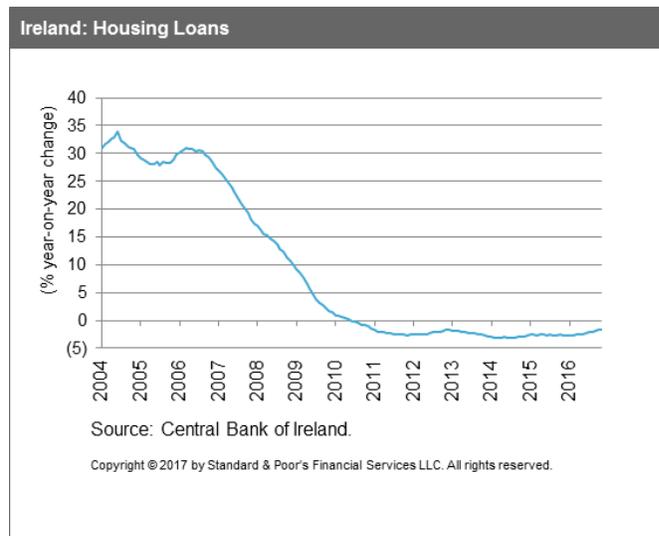


Chart 15

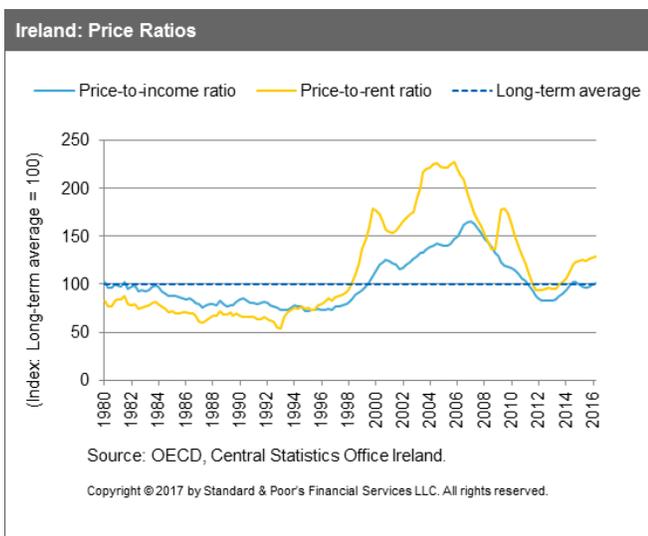
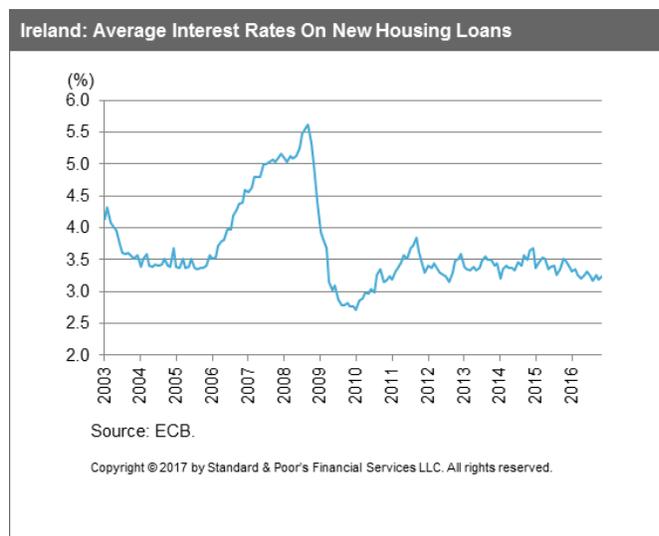


Chart 16



Italy: A Weak Economy Will Keep Prices Flat

We expect house prices in Italy will remain depressed and show zero growth over the next two years (see table 6), despite the economic support that ultra-low interest rates are providing. The limited improvement in the Italian economy overall implies that housing prices will remain flat.

Recent trends

In December, the "no" outcome to the constitutional referendum triggered Prime Minister Matteo Renzi's resignation. A new government in broad continuity with the previous one was quickly formed and, since then, the market reaction has been fairly positive. Concerns about a more negative scenario, where market pressure and worries about an

unstable political landscape could have delivered a sizable shock to business and consumer confidence, have so far not materialized. Sentiment indicators have been fairly resilient, while production surveys have actually recovered from the weakness in the middle of last year. Likewise, available official data through November and forward-looking indicators of bank lending have not been affected noticeably by the contentious political climate prevailing prior to the referendum. We view this resilience in the data as encouraging.

Record-low interest rates continue to support domestic growth drivers. Despite the difficulties experienced by some financial institutions because of their elevated levels of nonperforming loans, credit flows continue to recover, albeit sluggishly. Importantly, there are no signs of a negative turn in credit supply to the private sector. The Q4 2016 bank lending survey showed further strengthening of loan demand, especially for mortgages. This firming, in turn, may usher in a belated return to growth in the construction sector. A timely fix to the most vulnerable banks, together with the completion of other lenders' market based plans, would add traction to the credit channel in 2017.

Against this backdrop, the residential real estate market revival gained momentum. Data for the third quarter of last year showed property sales up 17.8% year on year (after a yearly rise of 22.9% in the previous quarter; see chart 17). From a geographic standpoint, sales in the northern part of the country outpaced other regions (+22.3%), while in the center and the southern areas housing sales were up 15.2% and 10%, respectively. The sharp pickup in activity has essentially been underpinned by the equally sharp fall in interest rates. As in most other eurozone countries, the ECB's accommodative policy has engineered a decline in sovereign yields that translated into much lower rates on housing loans. In Italy's case, rates went from an average of 5.1% in 2008 to 2.2% last year. Prices over that same period fell 15%. The combination of those two factors boosted the purchasing power of potential buyers by 15%. Yet, renewed activity did not affect nominal price trends. The latest data available suggest that in the 12 months to June 2016 prices were down 1.4%.

Future trends

Although the economy has shown some resilience following the December referendum, considerable uncertainties remain about the economic and political outlook as the new government tries to tackle urgent issues, such as the banking crisis and the electoral reforms. The timing of the Monte dei Paschi recapitalization is not entirely clear, nor is the prospect of new elections later this year.

In this volatile environment, the latest economic indicators have given mixed signals. The manufacturing Purchasing Managers Index (PMI) for December reached its highest level in nine months, helped by the weak euro, but little progress has been recorded lately on the labor market. The acceleration in headline inflation on higher energy costs is also likely to curb growth in consumer demand. On the investment side, the breakdown of domestic demand in the third quarter of 2016 revealed a pickup in capital spending, and the encouraging trends in the latest bank lending survey lead us to expect a gradual recovery throughout 2017. We expect real GDP growth to be close to last year's 0.9% in 2017 and 2018.

We nevertheless consider the housing market outlook not particularly strong. Transactions recovered nicely in 2016 (see chart 176), underpinned by very low interest rates, but prices remained depressed. We expect to witness a similar trend this year, although we think that growth in overall transactions is likely to slow in the second part of the year and in 2018. This is because the interest rates reached all-time lows last year but are now bouncing back, albeit slowly.

Their positive influence on housing demand will gradually fade. Furthermore, the limited improvement in the economy overall implies that housing prices will remain quite flat in the coming two years.

Table 6

| Italy Housing Market Statistics | | | | | | |
|--|------|------|------|-------|-------|-------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | -5.3 | -3.6 | -1.7 | -1.0 | 0.0 | 0.0 |
| Real GDP (% change) | -1.7 | 0.2 | 0.6 | 0.9 | 0.8 | 0.9 |
| CPI inflation (%) | 1.2 | 0.2 | 0.1 | 0.0 | 1.2 | 1.3 |
| Unemployment rate | 12.2 | 12.7 | 11.9 | 11.5 | 11.2 | 10.8 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, OECD, Nomisma.

Chart 17

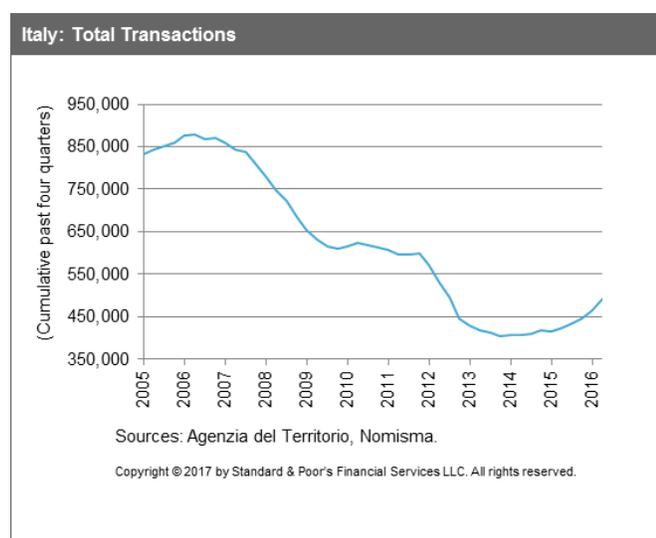


Chart 18

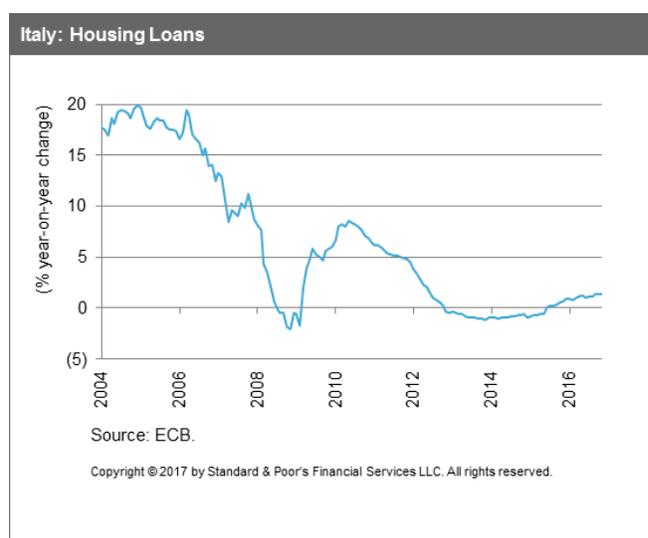


Chart 19

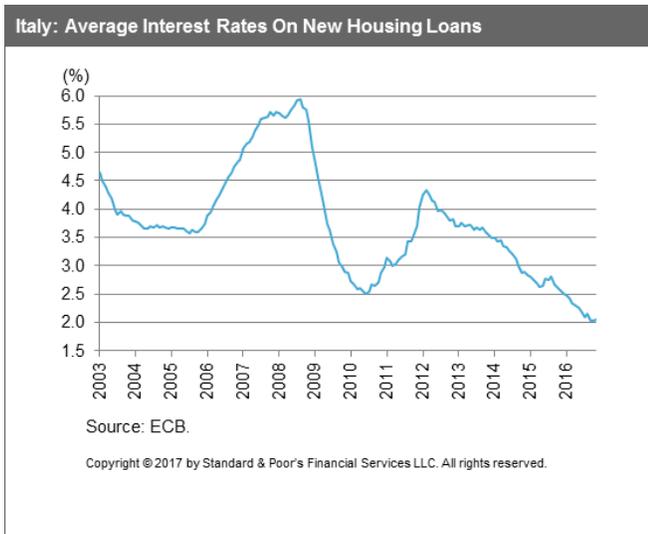
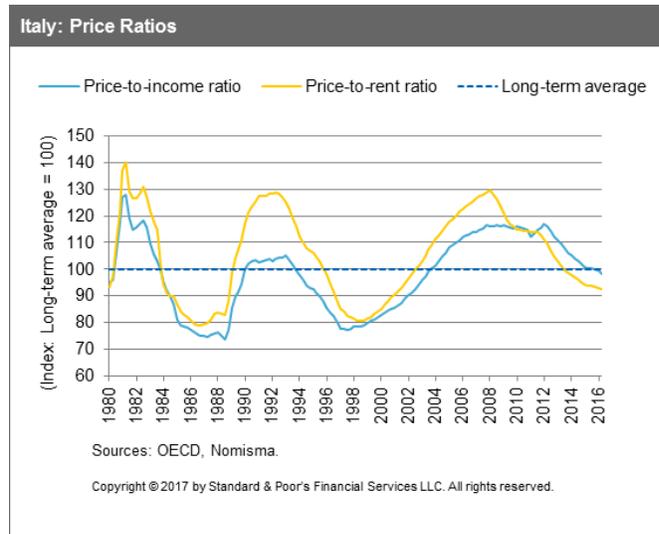


Chart 20



The Netherlands: House Prices Are Making A Strong Recovery

We forecast that house prices will continue to rise strongly by 5% this year, after an expected 6% in 2016, fueled by demand for housing outstripping the supply, which is leading to bottlenecks and increased price pressure. Still, we expect the pace of price growth to slow further to 3% in 2018, not least because a gradual rise in mortgage interest rates is likely to curb households' borrowing capacity and demand for housing.

Recent Trends

The Dutch housing market is experiencing a spectacular recovery after a prolonged price correction of 20% between 2008 and 2013. A solid economic recovery, in addition to falling mortgage interest rates, has improved affordability, while mounting supply shortages continue to boost the market.

The number of transactions has been strongly recovering since mid-2013 (see chart 21). In the 12 months to November 2016, they surged to more than 211,000, slightly above the annual average level seen before the 2008 market crisis. This suggests that sales will start to peak soon in light of the insufficient supply of houses. The supply of owner-occupied homes for sale fell to just above 130,000 in December 2016, about 30,000 fewer than one year ago.

Meanwhile, housing prices are also increasing substantially. According to the Central Bureau of Statistics (CBS), prices of owner-occupied houses were 6.7% up in December 2016 from the same month a year earlier, which is the strongest annual price increase in more than 14 years. In the biggest cities, where the shortage of housing is most acute, price rises have been even larger, led by Amsterdam with a 14.4% year-on-year increase. The housing shortfall in Amsterdam accounted for 4.2% of the existing stock in 2015, and is set to increase to 5.2% by 2025, according to ABF, a research institution. The nationwide average shortage was 1.8% in 2015, suggesting that demand exceeded supply by 134,000 homes.

At the same time, construction of new buildings is only increasing slowly, and undershoots demand. Although

construction permit numbers have recovered since the start of 2016, the 49,000 new permits delivered in the 12 months to November 2016 remain significantly lower than the pre-crisis average of 80,000 over 12-month periods between 2001 and 2008. This has resulted in a restrained number of finished new buildings and new houses for sale. The OECD has reported that housing supply responsiveness to demand is noticeably low in the Netherlands, leading to larger price increases compared to countries where supply tends to be more flexible. Public policies, such as the improvement in land-use regulations (streamlining complicated licensing procedures and easing planning restriction), or the provision for infrastructure and other public services along with housing, could influence supply. Nevertheless, housing supply in the Netherlands is also constrained by the physical limitations of land for development and the already high population density.

Meanwhile, strong economic conditions and low interest rates have led to low mortgage financing costs. We estimate real GDP expanded by about 2.0% in 2016, at a similar pace as in 2015. Contrary to most of its eurozone peers, the recovery was broad-based, with both exports and domestic demand contributing to growth. The main driver was an upturn in consumer spending, due to a very significant improvement in the labor market. The unemployment rate dropped to 5.4% in December 2016 from 6.6% on the same month a year earlier. Steady wage growth, alongside very low inflation (reaching 0.1% on average last year) and tax cuts brought a relatively robust increase in real disposable incomes. As the housing market is picking up, it leads in turn to strong growth in housing investment, which rose 20% year on year in Q3 2016.

Alongside solid economic conditions, low interest rates are also increasing households' borrowing capacity. Mortgage interest rates have been falling sharply since 2011, reaching an all-time low of 2.40% in December 2016 (see chart 22). Nevertheless, affordability measures, such as the price-to-income and price-to-rent ratios, have started to deteriorate again since 2015, after improving markedly between 2008 and 2013 (see chart 24). In September 2016, both ratios pointed to an overvaluation of the market of about 5%-20%. Our housing affordability index, which measures the degree to which a typical family can afford the monthly mortgage payment on a typical home, shows that the average family income in the Netherlands is about 100% of the income necessary to qualify for a conventional loan, covering 80% of an average-priced home, as of September 2016. This compares with 130% in Belgium, suggesting that Dutch households would be much more sensitive to a rise in interest rates or to stricter mortgage regulations.

Future trends

Some developments could weigh on the housing market over the coming quarters. We expect economic growth in the Netherlands to slow in 2017 and 2018 to between 1.4%-1.5% due both to domestic factors and external uncertainties. Inflation looks set to rise gradually this year, mainly because of the base effects of the annual rate of change in energy prices. This will result in lower real wage growth in 2017, negatively affecting consumer spending. We also expect a smaller increase in disposable incomes, owing to lesser fiscal policy stimulus benefiting households and a slowdown in employment growth after a rapid increase last year.

As a small country highly dependent on foreign trade, the Netherlands also potentially faces risks from post-Brexit negotiations, and a possibly increasingly protectionist climate following the stance of U.S. President Trump. The upcoming general election in March 2017 is adding further uncertainties. The surge of the right-wing anti-EU Freedom Party (PVV) could dent the confidence of investors, consumers, and businesses. The populist surge is nevertheless likely to be held in check by the country's coalition system and balanced by the upper house. A withdrawal from the

EU would only be possible with a majority in both the lower and upper houses, which is unlikely.

The Dutch housing markets should nevertheless continue to be underpinned over the coming quarters not just by strong household demand, growing employment and wages, but also by increasing investor interest. The Dutch government has imposed stricter regulation on social housing associations to limit their investments in the non-regulated market. This, combined with government measures to encourage more market-based rents, is attracting investors looking for alternative investment in the low interest rate environment.

The ECB's Jan. 19 confirmation that it will extend its asset purchase program at least until the end of December this year will also contribute to sustained demand for housing. Continued low interest rates will keep mortgage rates low, keeping the market affordable and underpinning the house price recovery, although to a lesser extent than in the past two years. Long-term sovereign bond yields have been increasing slightly since late September 2016, amid rising inflation expectations and President Trump's promise of fiscal stimulus. Dutch 10-year government bond yields rose to 0.6% at the beginning of February from around 0%. We expect mortgage interest rates to slowly start to creep upward, but to remain low, driving up housing mortgage loans.

Nevertheless, Dutch outstanding mortgage debt is still among the highest as a percentage of GDP in the eurozone. It reached 115% of GDP in Q3 2016 (58% for the eurozone). In this regard, the European Systemic Risk Board has recommended a further tightening of loan-to-value ratios and an acceleration of the reduction of the mortgage relief scheme. Since Jan. 1, 2017, the mortgage loan-to-value ratio has fallen to 101% and is expected to decline further to 100% by 2018. European policymakers are keen to see loan-to-value ratios decline further to 80%.

As of Jan. 1, 2013, new mortgages borrowers have seen the tax rate at which they might deduct their mortgage interest gradually decline. As of 2017 this rate dropped from 50.5% to 50% and is likely to be reduced by increments of half a percentage point until it reaches 38%.

The International Monetary Fund (IMF) recommends speeding the reduction of the tax rate by 1 percentage point per year, rather than the current half percentage point. At present, the government is not willing to jeopardize the housing recovery by imposing these measures. Expectations for changes in mortgage interest rate deductibility had accelerated the home price slump between 2011 and 2013.

Over the longer term, socio-demographic changes and insufficient construction are likely to provide structural support for the housing market. The increase in single-person households is requiring additional housing construction. We expect the Dutch population to grow by 0.3% per year from 2017 to 2020. The average annual growth rate of multi-person households was only 0.3% compared to 1.5% for one-person households over 2005 and 2016, the latter already constituting 38% of total households.

Table 7

| The Netherlands Housing Market Statistics | | | | | | |
|--|-------------|-------------|-------------|--------------|--------------|--------------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | -4.4 | 2.0 | 4.8 | 6.0 | 5.0 | 3.0 |
| Real GDP (% change) | -0.1 | 1.4 | 2.0 | 2.0 | 1.5 | 1.4 |
| CPI inflation (%) | 2.6 | 0.3 | 0.2 | 0.2 | 1.3 | 1.5 |

Table 7

The Netherlands Housing Market Statistics (cont.)

| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
|-------------------|------|------|------|-------|-------|-------|
| Unemployment rate | 7.3 | 7.4 | 6.9 | 6.0 | 5.6 | 5.6 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, Kadaster, OECD, CBS Statistics Netherlands.

Chart 21

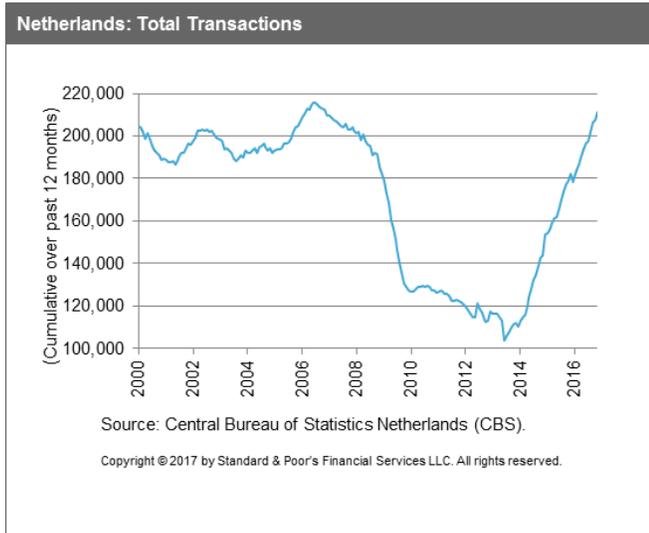


Chart 22

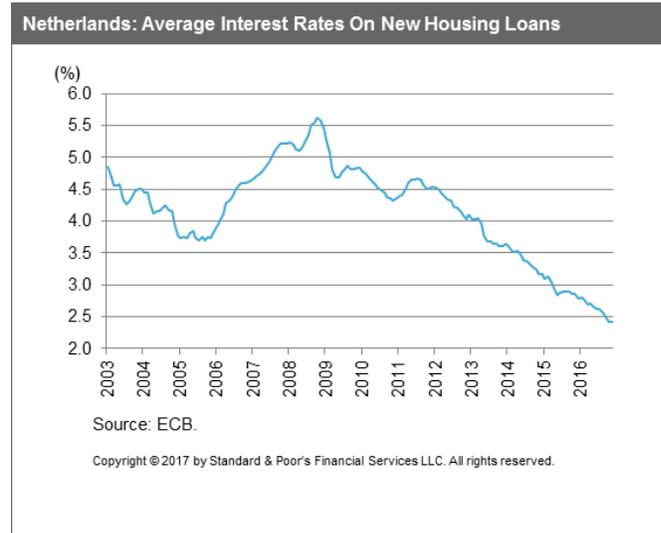


Chart 23

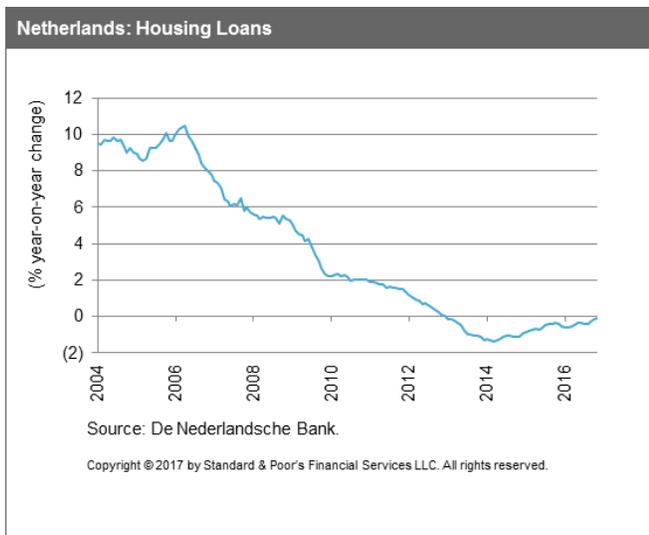
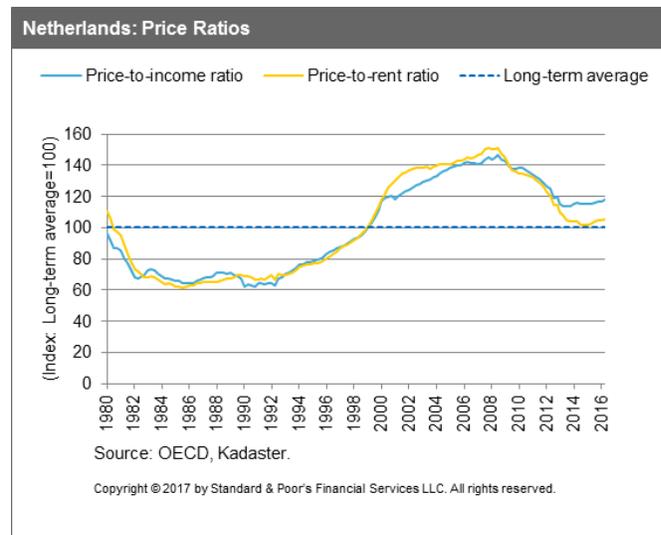


Chart 24



Portugal: Foreign Buyers Prop Up Demand

We expect increased demand from domestic buyers, as well as continuing interest from foreigners, will lead to bottlenecks in the housing market over the next few years, due to insufficient supply. This will underpin further

increases in house prices, although we expect prices to grow at a more moderate pace compared to 2016, rising by 4% this year and 3% in 2017.

Recent trends

The Portuguese housing market has strengthened significantly since 2015 against the background of economic recovery, falling mortgage interest rates, and supply constraints. Nominal house prices increased by 7.6% over the year to Q3 2016, and were 17.6% higher compared to their lowest point in the second quarter of 2013. House prices continued to grow strongly in the Lisbon area, which enjoyed an earlier recovery than other regions. The weight of the metropolitan area of Lisbon is considerable: 34% of all housing sales were transacted in this area in Q3 2016, and it comprised 47.4% of total house sale values. But the recovery has broadened to other areas as well, not only the popular tourist area of Algarve but also the north and central regions.

Activity in the housing market has accelerated markedly over the past two years. The number of residential property transactions increased by 20% in the first nine months of 2016 on the same period a year earlier. This follows a 27% rise in 2015. The upsurge is mostly attributed to transactions in existing properties, where activity started to rebound in 2013. By contrast, transactions in new properties increased by only 3% over January to September 2016 on the same period a year earlier. The market for new properties suffered steeper price declines in 2011-2012 compared to the market for existing properties, and the recovery also lagged. As a result, new properties accounted for only 17% of all transactions during the first nine months of 2016, down from about 30% on average before 2014.

Housing demand is firming as the economic recovery continues, accompanied by improvements in the labor market. We estimate that real GDP rose by 1.2% for 2016 as a whole (see table 8), marking the third year of positive growth after a double-dip recession. Employment growth has remained steady at around 1.2% in 2016 with most jobs created with permanent contracts. Unemployment continued to decline, falling to 10.5% in November, down from 17.4% at the beginning of 2013. Still, unemployment remains well above the pre-crisis levels.

Historically low mortgage interest rates, at 1.87% in December 2016 (see chart 26), made house purchases more affordable and boosted demand. New mortgage lending surged by more than 70% in 2015, although on a net basis, house lending continued to contract. While growth in new housing loans is still brisk, it has been slowing since April. New mortgages were up 46% in 2016.

Despite sizable price gains over the past two years, the Portuguese housing market remains very affordable. The price-to-income ratio has moved up over the past two years (see chart 28), but the market was still 12% undervalued in Q3 2016 compared to its long-term average. Similarly, the price-to rent index was 16% below its long-term average value. Due to regional disparities in house prices, affordability is lower in the more expensive regions. Still, even in these regions the market is much more affordable than in many other European countries. Portugal's housing market is also affordable if measured by the degree to which a typical family can afford the monthly mortgage payments on a typical home. According to our estimates, at current mortgage rates an average family in Portugal has 167% of the income necessary to qualify for a conventional loan, covering 80% of an average-priced home, as of September 2016.

Affordable prices and a mild climate appeal to foreign retirees and increasingly also foreign families. Portugal's favorable non-habitual residents' tax regime is another factor attracting retirees from abroad, but also high-net-worth individuals. The Portuguese government has also put in place the so-called "golden visa", which gives non-EU

nationals who buy a property for at least €500,000 a five-year residency permit as well as the possibility to apply for permanent residency and Portuguese nationality. From its launch in October 2012 until December 2016, nearly €2.3 billion was invested in Portuguese real estate properties and almost 4,000 residency permits were issued. Golden visa applicants are mainly purchasing prime market property, but more broadly foreign buyers are contributing to an upswing in the residential property market.

Supply has started to respond to the increased demand for residential properties. The number of completed dwellings increased by close to 13% over the year to Q3 2016. This follows almost a decade of declines in the numbers of completions. Over 2010-2015, the number of completed dwellings fell by 25%-30% each year. The number of permits started to increase since mid-2014, reaching around 11,000 in 2016 (see chart 25). However, this is still a fraction of the number of permits issued before the crisis and not sufficient for supply to meet demand, thus fueling prices.

Future trends

A steady, albeit modest economic recovery and gradually improving labor market conditions should continue to support the housing market. We expect the Portuguese economy to move ahead at a moderate pace, with GDP growth rising by 1.2% this year, and 1.3% in 2018. The recovery is constrained by the debt overhang, as all sectors of the Portuguese economy--the public sector, corporates and households--are highly leveraged. We expect growth in household spending to slow down as the boost to consumer purchasing power from the previous decline in oil prices dissipates. The gradual phasing out of the income tax surcharge should provide some support to disposable income this year. The steady pace of job creation should continue in the coming quarters, shoring up consumption. Fixed investment fell last year after two years of growth, reflecting a weakening in capital spending by both public and corporate sectors, but should resume in 2017, helped by the EU funds.

The extension of the ECB asset purchase program at least until the end of December 2017 should keep a lid on mortgage interest rates. Nevertheless, interest rates should rise gradually from currently very low levels. Portuguese long-term yields rose by 100 bps to 4.2% in the aftermath of the U.S. presidential elections, as market expectations of a fiscal stimulus in the U.S. pushed up global bond yields. Meanwhile, the sovereign spread vis-a-vis German bunds reached 376 bps at the end of January and is significantly higher than those of its European peers (excluding Greece). This reflects high Portuguese government debt, which reached an estimated 128% of GDP in 2016, only slightly down from 129% in 2015.

Even with mortgage rates at low levels, high household debt limits the appetite for new lending. In addition, the situation in Portugal's still fragile banking system might also contribute to negative net mortgage lending. A significant stock of nonperforming loans limits new lending by banks. We estimate the Portuguese banking system's nonperforming-loans' ratio (including real estate) at 15.3% at end-September. Different banks are taking restructuring and capital-enhancing measures. This should support their capitalization, although we expect that it will remain weak compared to European peers. We expect the banking system to remain loss-making in 2016 for the sixth consecutive year and most likely in 2017, hindering organic capital generation. In this context, Portuguese banks might prefer increasing loans to the segments that are more profitable than mortgages.

Table 8

Portugal Housing Market Statistics

| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
|--|------|------|------|-------|-------|-------|
| Nominal house prices (% change year on year) | 0.6 | 2.2 | 5.0 | 7.5 | 4.0 | 3.0 |
| Real GDP, % change | -1.1 | 0.9 | 1.6 | 1.2 | 1.2 | 1.3 |
| CPI inflation (%) | 0.4 | -0.2 | 0.5 | 0.7 | 1.2 | 1.5 |
| Unemployment rate | 16.4 | 14.1 | 12.7 | 11.1 | 10.5 | 10.1 |

e--Estimate. f--Forecast. Source: S&P, Eurostat, OECD, Instituto Nacional de Estatística.

Chart 25

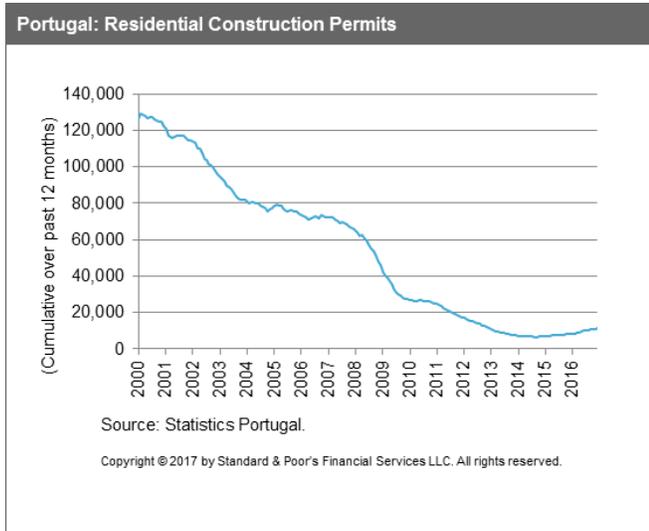


Chart 26

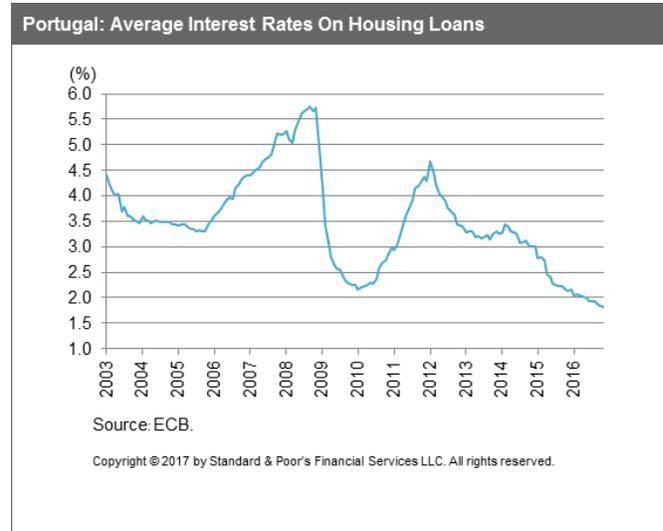


Chart 27

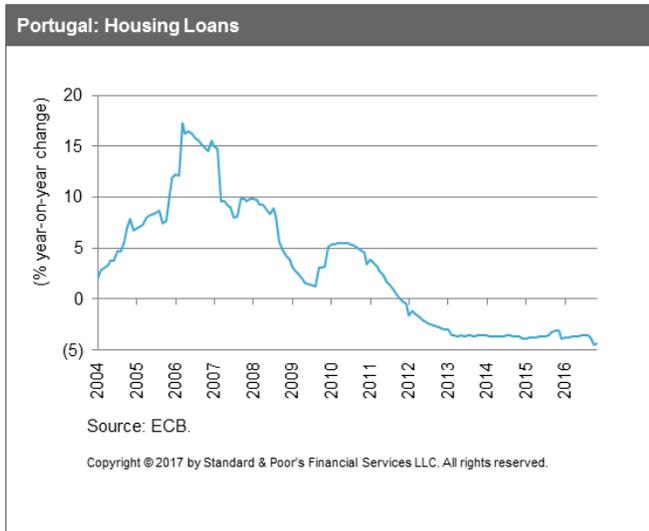
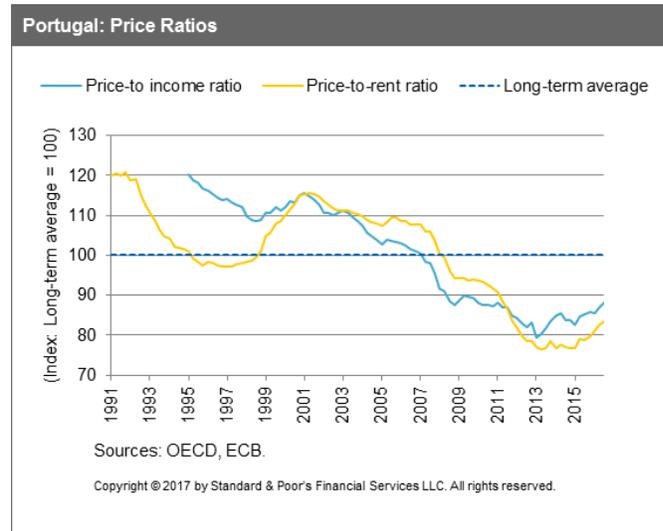


Chart 28



Spain: Robust Recovery Boosts Housing Sales

Spain's solid economic growth and recovering job market continue to breathe life into the housing market. We expect nominal house prices in Spain to rise by 2.5% this year, after gaining 4% in 2016. We foresee slower house price growth of 2% in 2018, as inflation edges up and fiscal policies tighten.

Recent trends

Spain has chiseled out solid growth since late 2013, and the latest indicators suggest the recovery continues to unfold at a solid pace. According to Spain's national statistical office, the economy posted its 12th consecutive gain in the third quarter of 2016, following nine consecutive quarters of decline. Real GDP grew 0.7% quarter on quarter (in Q3 2016), slipping below its gains of 0.8% quarter on quarter in the first half of 2016 and Q4 2015. Meanwhile, real output was up 3.2% year on year in Q3, down from 3.4% year on year in the first half of 2016. The formation of a new government after two general elections helped lift consumer confidence after it slumped to a 22-month low in September 2016. According to a European Commission survey, the consumer confidence indicator improved for a second straight month to -2.2 in November, compared with -4.8 in October, but was still short of a survey high of +5.4 at end-2015. The November survey revealed that households were more upbeat about the state of the economy during the next 12 months. Consumer price inflation slipped back into negative territory during the first eight months of 2016, before returning to positive territory in the final months of 2016 to 1.6% year on year in December.

The jobless rate finally fell below 20% in Q3 2016. There were 216,800 new jobs created during those three months (455,700 in 12 months), primarily in services (178,700), but also in industry (34,200) and construction (29,900), while employment in agriculture fell 16,300. High-frequency indicators for November 2016 were strong, such as industrial production up 3.2% year on year or car sales up 9.6%. Overall, we expect the Spanish economy grew by 3.2% in 2016, same as in 2015.

Against this backdrop, the housing market continued to recover. Transactions were up 6.5% in the 12 months to November, supported by the continued drop in interest rates. Rates averaged 2.96% that month, from 4.65% a year earlier. In fact, Spain is the eurozone economy where the effects of lower rates on the housing market have been the strongest since the beginning of the great financial crisis. Average rates fell from 5.7% in 2008 to 2.0% in the first half of last year. Meanwhile, house prices fell 26% over the same period. As a result, potential buyers' spending power increased by a strong 87% over the period, the sharpest rise among eurozone countries (Italy comes second with a 55% rise).

Future trends

After finishing 2016 on a strong footing, we expect the economy will still be among the best performers in terms of overall growth in the eurozone in 2017-2018. Still, GDP growth should slow this year and next compared to the past few years, owing to two main factors. First, consumers are likely to be penalized by the sharp rise in headline inflation we predict for 2017. Higher energy costs will push inflation up to its highest levels in five years (1.4% on average, with a peak at about 2.3% year on year in the second quarter), but wage growth is unlikely to be fully in line with this surge. This is because labor market conditions, albeit improving, remain rather unfavorable to wage earners. As a result, real disposable income growth is likely to slow this year to about 2.0% from 2.7% in 2016, resulting in a more muted rise in

consumer demand. The second less favorable factor for growth is likely to come from tighter fiscal policies as the new government tries to flatten the public debt trajectory. Overall, we forecast GDP growth at 2.3% in 2017 and 2.0% the year after.

Against this background, the housing market should continue to heal but house price growth will remain benign. Indeed, several factors will weigh on market activity. First, interest rates have bottomed out and are now on a gentle upside trajectory. The strong boost from financial conditions is going to fade away slowly but surely. Second, while market fundamentals have continuously improved relative to pre-crisis levels, the market remains expensive. House prices still correspond on average to 6.4 years of household incomes, a high ratio by European standards. Third, Sareb, the management company created in 2012 to manage assets arising from the banking sector restructuring, is reported to have a portfolio of over 105,000 properties, 48% of which are dwellings. These assets will be released in the coming quarters, a factor of pressure on average housing prices. Finally, the effect of Brexit on the Spanish market should not be ignored although it is likely to be felt more in the medium term. Britons were for years the largest group of foreign buyers. The fall in sterling combined with uncertainties regarding the future status of U.K. nationals in the EU is likely to weaken that component of demand, although the timing of this deceleration is uncertain.

Table 9

| Spain Housing Market Statistics | | | | | | |
|--|------|------|------|-------|-------|-------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | -6.2 | 1.9 | 4.3 | 4.0 | 2.5 | 2.0 |
| Real GDP (% change) | -1.7 | 1.4 | 3.2 | 3.2 | 2.3 | 2.0 |
| CPI inflation (%) | 1.5 | -0.2 | -0.6 | -0.4 | 1.4 | 1.5 |
| Unemployment rate | 26.1 | 24.4 | 22.1 | 19.8 | 17.8 | 16.3 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, Banco de Espana, OECD, Instituto Nacional de Estadística (INE).

Chart 29

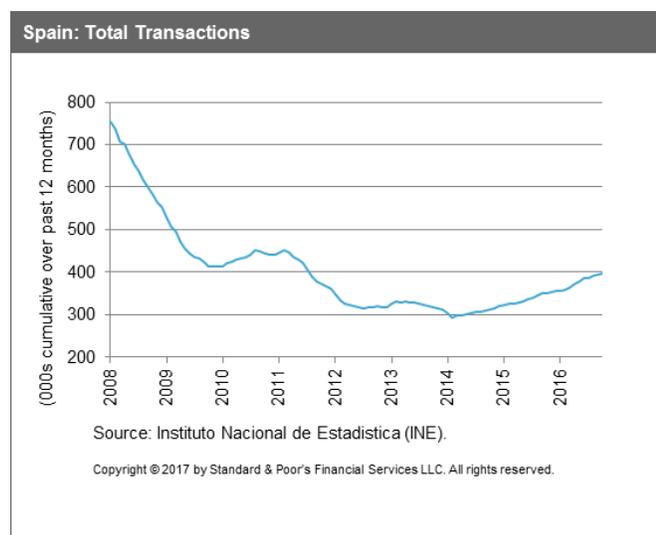


Chart 30

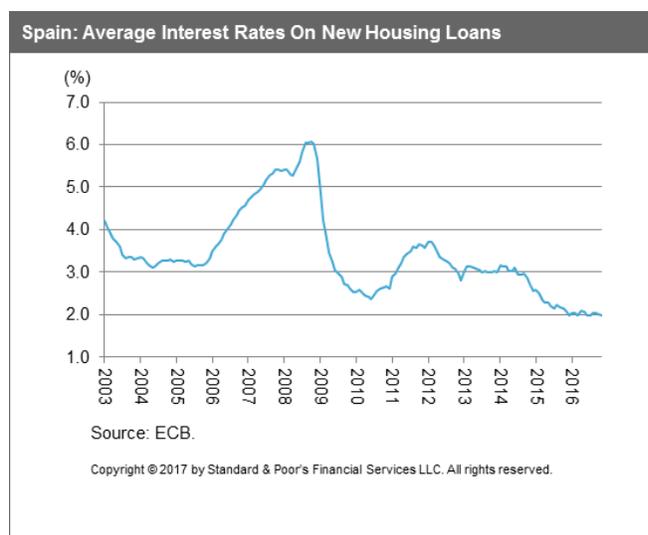


Chart 31

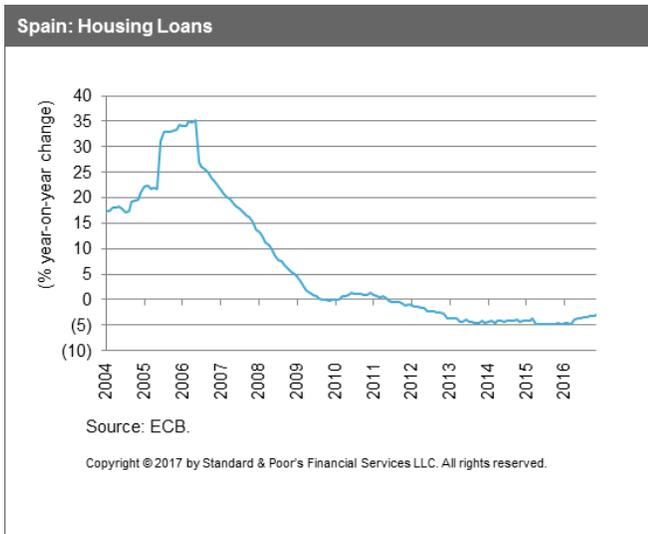
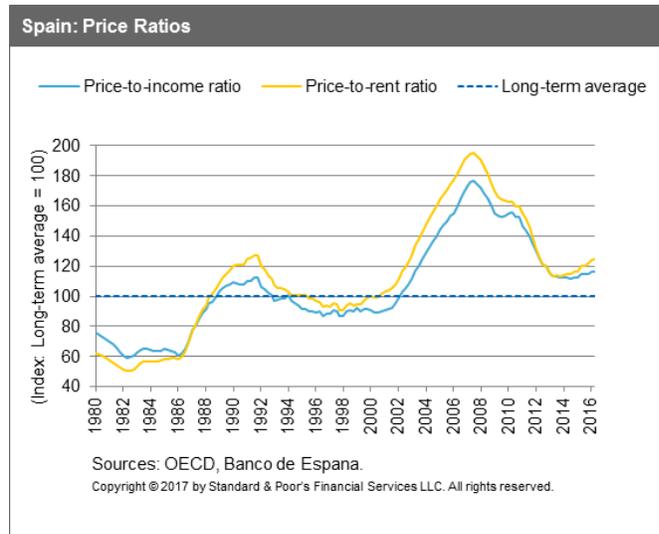


Chart 32



Switzerland: Regulatory Measures Will Limit House Price Rises

We anticipate very slow growth in house prices over the next two years of 0% to 1% (see table 1), reflecting the impact of diverging forces. While improving economic conditions and still very low interest rates should support housing demand, regulatory measures and high residential property prices will limit the upside potential. We expect policymakers to adjust regulatory measures if the adverse impact on house prices becomes too strong.

Recent trends

The Swiss economy continues to adjust to a deterioration in external competitiveness caused by a sharp appreciation of the Swiss franc after the limit on the Swiss franc-euro exchange rate was abandoned in January 2015. The Swiss franc stabilized at 1.10-1.11 to the euro by March-May 2016, but strengthened to 1.08 in the run-up to the Brexit referendum, as the Swiss currency is perceived as a safe-haven currency in periods of elevated uncertainty. The franc strengthened further vis-à-vis the euro to about 1.07 Swiss francs to the euro after the U.S. presidential election. However, it fell against the U.S. dollar, so that recent exchange rate appreciation was very limited when measured against a basket of currencies of Switzerland's trade partners. Nevertheless, the trade-weighted exchange rate is still 8% above its 2014 level.

After strong GDP growth in the first half of 2016, activity stagnated in the third quarter, reflecting weak consumer spending and shrinking exports. Recent indicators suggest that this was a temporary slowdown. The manufacturing PMI was close to 56 points on average in the fourth quarter, well above the neutral 50 threshold, and at a level not seen since the beginning of 2014. Retail sales posted 0.7% monthly growth on average in October-November, after falling through most of 2016. Labor supply growth continued to slightly outpace employment growth, resulting in small increases in the unemployment rate. Unemployment nevertheless remained low at 3.3% in 2016. Meanwhile, investment in residential construction recovered strongly in the second half of the year after the declines of 2015.

The Swiss National Bank (SNB) monetary policy remains expansionary, with interest rates in negative territory at

record low levels. Bond yields edged up in line with global trends following the outcome of U.S. presidential election that triggered market expectations of meaningful fiscal stimulus in the U.S. As a result, Swiss bonds yields with a maturity beyond 10 years are no longer trading at negative yields, as was the case in the aftermath of the Brexit referendum. Interest rates on fixed-rate mortgages remained at low levels, edging up slightly in October to 1.41% in October from 1.36% in September.

Against this backdrop, ultra-low interest rates and slightly improved economic conditions are supportive for the housing market, although regulatory measures aimed at taming the housing cycle are working in opposite direction. The measures, including both self-regulation by banks and legal directives, have limited the number of people eligible for mortgages. This led to a slowdown in mortgage loans to 2.6% year-on-year in October, from 3.1% in 2015, and 4.7% on average over 2009-2013 (see chart 35).

The housing market softened as a result, with prices for single-family homes growing by 1.5% last year, down from 2.3% in 2015. Price growth slowed across all regions, while in some regions, such as central and southern Switzerland, prices for single-family homes fell in 2016. Home prices in the Lake Geneva area continued to fall, but the pace of decline slowed in 2016. Price gains for owner-occupied apartments across Switzerland decelerated to 1.2% on average, from 1.6% in 2015. In the rental segment, prices were falling in the first nine months of 2016, and stagnated in the last quarter, as a combination of high property prices with rent controls made rental properties less attractive.

Future trends

We expect the recovery from the 2015 slowdown to continue at a measured pace, and keep our GDP growth forecast unchanged at 1.5% in 2017 and 2018. Consumer price growth should turn positive this year, as external deflationary pressures from the stronger franc and lower oil prices fade away. The rise in inflation should allow the central bank to start normalizing monetary policy. Our baseline scenario anticipates that the policy rate will rise gradually starting in 2018, but remain in negative territory over our forecasting horizon.

The fallout from Brexit, as well as the danger of increased protectionism in the U.S., with potential repercussions for global trade, are major downside risks for the Swiss export-oriented economy. Moreover, appreciation pressures on the Swiss franc may intensify in the environment of elevated uncertainties about European and global economic and financial developments post-Brexit and the U.S. election. We assume that the SNB will remain active in the foreign exchange market and intervenes if necessary.

Immigration used to support the Swiss housing market, but the outlook for future migration became uncertain after the 2014 referendum outcome against "mass migration". New immigration rules should come into force this year, and recently emerged details suggest that the impact on immigration will in fact be limited. Related to that, the risks of an unfavorable agreement with the EU that could potentially limit Switzerland's access to the EU markets have decreased, which should boost business sentiment.

Table 10

| Switzerland Housing Market Statistics | | | | | | |
|--|-------------|-------------|-------------|--------------|--------------|--------------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | 4.6 | 0.4 | 2.3 | 1.5 | 0.0 | 1.0 |
| Real GDP (% change)* | 1.8 | 2.0 | 0.8 | 1.6 | 1.5 | 1.5 |

Table 10

Switzerland Housing Market Statistics (cont.)

| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
|--------------------|------|------|------|-------|-------|-------|
| CPI inflation (%)* | -0.2 | 0.0 | -1.1 | -0.3 | 0.2 | 0.6 |
| Unemployment rate* | 3.1 | 3.2 | 3.3 | 3.4 | 3.4 | 3.3 |

*December forecasts, pre-SNB decision. e--Estimate. f--Forecast. Sources: S&P, Eurostat, OECD, Department for Communities and Local Government.

Chart 33

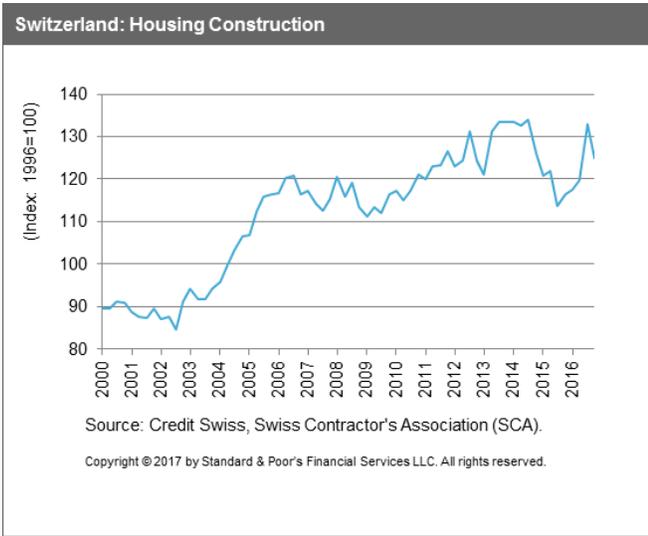


Chart 34

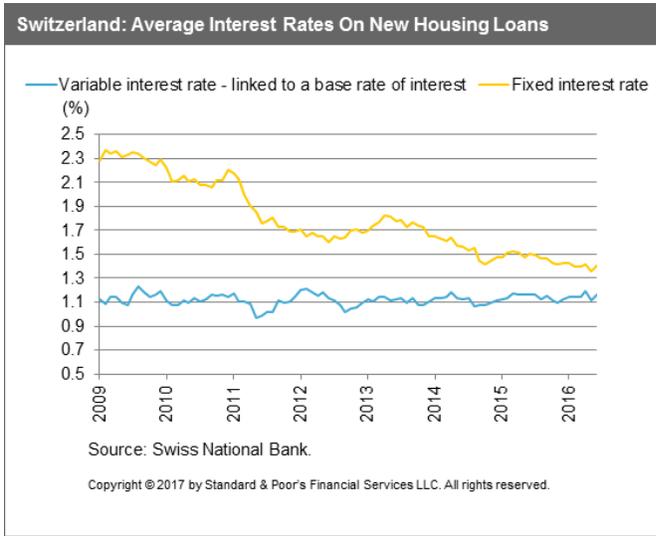


Chart 35

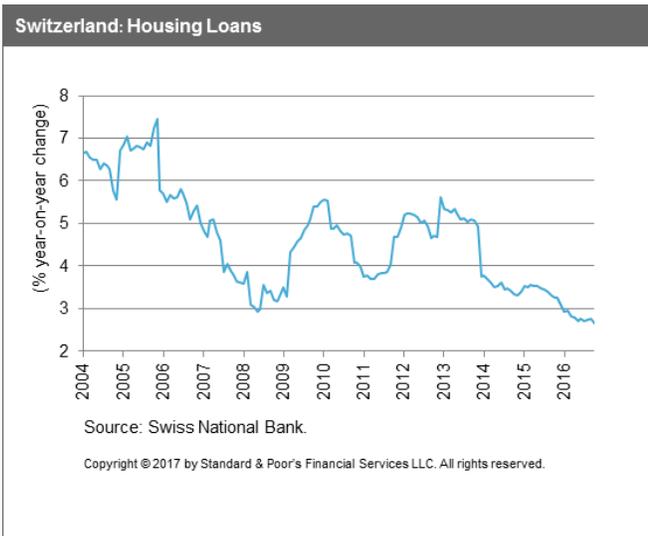
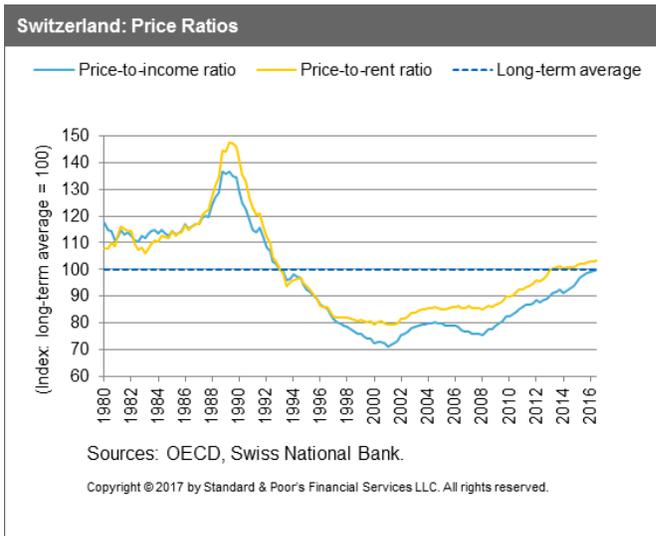


Chart 36



U.K.: Brexit Uncertainties Will Weigh On Market Activity

Although the U.K. economy has yet to show any clear sign of weakening since the June 2016 referendum decision to leave the EU, we think Brexit uncertainties will lead to a slowdown in growth over the coming two years that will spill over to the housing market. While leading indicators continue to suggest the robust economic momentum at the end last year should at least partly carry over into this year, some of that momentum will be broken by the squeeze of rapidly accelerating inflation on households' spending power. Moreover, as businesses adjust to the new Brexit reality as well as the uncertainty surrounding the EU exit deal the U.K. will eventually be able to strike, investment will also start to slow. This will dampen growth, with net exports unable to offset the loss. For the housing market, we expect price growth will slow significantly, but not turn negative, as prices remain underpinned by relatively favorable financing conditions, a strong reserve of pent-up demand, and pronounced shortages. After house price inflation of 7.5% in 2016, we forecast prices will rise by 2% this year, and remain flat in 2018.

Recent trends

Against initial expectations, the economy has yet to show clear signs of weakening following the Brexit vote. We believe this is because negative shocks to business and, in particular, household sentiment were short-lived and appear not to have had a significantly negative impact on economic activity in the second half of last year. The post-Brexit dip in sentiment indicators in July turned out to be a blip. After all, more than 50% of the voters had reason to celebrate following the referendum outcome. Activity was also supported, at least psychologically, by the swift deployment of supporting measures by the Bank of England in early August, including a cut of the bank rate to 0.25%, from 0.5% earlier, and the introduction of the term funding scheme. Helped by strong 0.6% GDP growth in the final quarter, growth for 2016 as a whole came in at 2%, very similar to what we would have forecast in the absence of Brexit.

In line with the overall show of resilience, the labor market held up well at the end of the year. Employment growth stagnated in November, after earlier strong gains, but the unemployment rate remained at 4.8%, just short of all-time lows (4.7% in 2005). Average weekly earnings continued to grow at a rate close to 3% at the end of the year, well above inflation, although in both nominal and real terms still below the pre-crisis average pace. In fact, real wages have only shown positive growth since 2015. Before that, the increase in economy-wide real incomes was driven predominantly by an increasing number of jobs, rather than incomes. Yet, the improvement in jobs, in combination with extremely low mortgage rates--which made funding cheaper for both owner-occupiers and buy-to-let (BTL) investors--was sufficient to strongly contribute to the recovery in house prices from 2014. In 2015-2016, house prices then benefited from the additional improvement in real incomes.

While house prices in real terms (deflated by consumer price inflation) are now close to all-time highs and nominal prices have exceeded pre-crisis highs, other activity on the housing market remains muted after an initial recovery phase. This is reflected in still low numbers of transactions. In 2016, according to HM Revenues and Customs data, 1.2 million homes changed hands compared to a pre-crisis peak of 1.7 million, with no material growth in transactions since mid-2014. Low transaction numbers are partly due to the introduction of new regulation, as well as tax changes, such as the stamp duty increase on second homes in April last year. But most importantly, stocks of homes for sale on the market are very low. According to data from the Royal Institution of Chartered Surveyors (RICS), stocks for sale in the past two years have been the lowest since 2000. Stocks are low partly because BTL purchases have shifted stocks

from the sales to the lettings market. BTL became increasingly attractive, with rental yields well above similarly safe investments in a low-yield environment as a consequence of very loose monetary policy. This, incidentally, also made funding for BTL purchases cheaper, via low mortgage rates. Another reason, in our view, why stocks remained low is that, as prices started to recover more markedly from 2013, potential sellers held back in anticipation of further appreciation in the future.

Affordability also remains an important issue, especially for first-time buyers. Price-to-income ratios have been rising quickly since 2014 to eight times the average wage, although the national average is currently still somewhat below the all-time peak of early 2008. However, affordability measured this way is only part of the hurdle that prevents would-be first-time buyers from getting on the housing ladder. New regulation and lending practices mean that many struggle already at the first hurdle, to raise the ever-increasing deposit. According to Halifax research, the average deposit first-time buyers have to bring has increased by nearly 120% over the past decade on the national level (280% in London). Average earnings have increased by only about 20% (both nationwide and in London) over the same period. Incidentally, this has forced many would-be first-time buyers into the rental market, sustaining rent increases, making it even more difficult to save for a deposit.

Future trends

The U.K.'s decision to leave the EU has added an added a thick layer of uncertainty surrounding the U.K.'s economic future. As a consequence, our forecast for the economy as a whole, and house prices in particular, is subject to much greater risks than usual.

None of the material implications of Brexit will have a direct impact over the forecast horizon because those factors will come into play only from 2019. What will have an impact, however, are household and business expectations for the future, how these expectations change as the exit negotiations progress, and, importantly, how households and businesses act on these expectations. Adjustment will take time and, as a result, the impact of Brexit is likely to be felt gradually. This will also be the case for business investment: activity should remain muted while uncertainty remains high, but then adjust to a somewhat lower trajectory as uncertainty starts to lift later in the negotiation process. That the impact will be gradual is also suggested by the still favorable forward-looking components (such as "new orders" and "new business") of key higher frequency survey data, in particular sectoral PMIs from January (these same indicators had also pointed early to ongoing strength in the final quarter of 2016).

Household spending will remain the key driver of growth over the next few years. We estimate household spending generated almost all of the GDP growth last year (1.7 percentage points of the 2 percentage points overall). But as household spending growth slows, so will GDP growth. Apart from gradual changes in expectations that may slow spending, inflation will start to erode spending power when it accelerates early this year to an expected 2.7% for the year as a whole, up from 1.6% in December 2016.

Inflation will be stoked by higher import prices on the back of a weaker exchange rate, both directly in imported consumer products, and as input prices pass through the production chain. Global oil prices, which are on the rise again, will add to the upward pressure. At the same time, the pace of wage growth is unlikely to pick up much from the 2.8% seen in November, against the background of gradually increasing worries over job security and an unemployment rate that slowly starts to climb upwards again in the second half of the year. Household budgets should

therefore see a considerable squeeze in real terms. Moreover, despite a more uncertain outlook, households continued to spend in the second half of 2016, partly by extending unsecured credit. We think a spending spree of proportions seen in the last quarter of 2016 will not be sustainable over the full forecast horizon, although it could last into a good part of this year. It is also likely that consumers have used credit to bring forward purchases of big-ticket items in anticipation of higher inflation in the future (the extension of car loans at the end of the year points in this direction). This would imply a downward correction to spending later this year.

With not much to be expected from investment and public spending given budget constraints, it would fall to external trade to make up for the loss in consumer spending. The weaker sterling is boosting the competitiveness of U.K. goods and services abroad, and should translate into higher export growth. This, along with slower import growth, because of higher import costs, will strengthen the contribution to GDP growth from net trade. Indeed, the contribution is set to turn markedly positive this year for the first time since 2011. Nevertheless, it is unlikely to be enough to avoid a slowdown of the economy as a whole. There is also some initial evidence that exporters have raised their prices in order to increase margins or to compensate for higher production costs, which offsets part of the gain in competitiveness from the weak exchange rate.

House prices will be negatively affected by the squeeze on household finances. It will make it even more difficult for would-be first-time buyers to save for ever-increasing deposits. Deleveraging of relatively high household debt (in 2016 at an average of 130% of disposable income) is also likely to slow, if not stall, as a consequence of the squeeze. On the margin, this is likely to make it more difficult to meet affordability criteria, not least in view of the recent surge in unsecured consumer credit. These factors should put downward pressure on house prices.

The impact will be compounded by first-time buyers' important role in the housing market. Last year, first-time buyers were responsible for close to 50% of all mortgage-funded transactions, compared to about 30% at the beginning of the previous decade, according to research from the Council of Mortgage Lenders. As a result, anything that negatively affects that segment of the market, will translate into lower house prices. The high share of first-time buyers illustrates at the same time the still weak activity further up the housing ladder. Activity in this segment could fall further in view of the uncertainties ahead, with potential buyers and sellers adopting a wait-and-see approach. Moreover, due to the changes in taxation and regulation, BTL purchases are unlikely to provide the same support to house prices as in the past.

House price dynamics will be different in London to the rest of the country. London will drag on national house price inflation rather than stoke it. This is partly because BTL purchases, which were particularly concentrated in London, will slow down because uncertainty about London's financial market future should dampen activity on the housing market. Moreover, affordability has become very stretched in London. The average price paid by first-time buyers in London has increased by 81% since 2009 to just above £400,000 compared to the national average of 52%, according to research by Halifax. This contrasts with national wage growth of around 15% only over the same period, and even somewhat lower in London. As a result, the average home in London is now worth 14 times the local average annual income, according to some estimates. Even when assuming optimistic loan-to-income ratios, on average a London first-time buyer's salary would need to be firmly in the top 10% of London salaries in order to be able to afford to buy.

In view of the stretched affordability in London, households that were renting in inner London, or were moving to

work in London, now increasingly appear to be avoiding inner London altogether and buying or renting further out (in outer London or beyond). Data from RICS's Residential Market Survey in December illustrates this: tenant demand points strongly downward in London, while it is positive or neutral everywhere else apart from Scotland. At the same time, London rent growth is also expected to soften. Tenant demand may also have weakened because BTL has absorbed some of the strong demand in the past few years. The prime residential market in London could also suffer over the forecast horizon. Anecdotal evidence suggests that the exchange may not be sufficiently weak to compensate potential buyers from abroad (key players in this segment) for increased uncertainty about the value of their investments in the future. This is putting further downward pressure on London prices.

A key factor that will continue to underpin house prices is very low mortgage rates. Rates are likely to hardly move from currently very favorable levels (at 1.9% in December for floating rates), owing to a continued ultra-low bank rate, to which they are tightly linked. Bank rates should stay at around current levels over the forecast horizon, even if inflation picks up, because monetary policy will likely provide ongoing support to the economy and the financial system as a priority over the next two years, especially in view of Brexit-related uncertainties. The BoE will make also make sure that the benefits of continued extraordinary loose monetary policy will continue reach retail borrowers.

In addition, developers and builders have persistently provided far fewer homes to the market than the potential rate of household formation. As a result, there is a pronounced housing shortage, especially in England, along with a sizable stock of pent-up demand (households that are currently priced out, but would buy if prices were to fall). Both should limit a more severe drop in prices provided the economy doesn't take a turn for the much worse and unemployment doesn't rise to much higher rates than we anticipate, leading to widespread forced selling. We currently do not consider this downside risk to the market as very likely.

In his autumn budget, the new chancellor, Philip Hammond, revealed two fresh housing initiatives as part of the newly established National Productivity Investment Fund. Together, the initiatives aim to supply an additional 140,000 homes to the market by 2021, at least 40,000 of them "affordable". If, fully implemented, this will relieve some of the pressure. A back-of-the envelope calculation (increasing supply by about 30,000 units a year), however, suggests that much more will be needed to address the shortage. The government's much anticipated and long awaited white paper on housing, scheduled for publication by the end of January (which was not yet available at the time of writing early February) should provide more clarity on how the government aims to tackle the underlying structural issues.

Table 11

| U.K. Housing Market Statistics | | | | | | |
|--|-------------|-------------|-------------|--------------|--------------|--------------|
| | 2013 | 2014 | 2015 | 2016e | 2017f | 2018f |
| Nominal house prices (% change year on year) | 4.5 | 8.5 | 6.4 | 7.5 | 2.0 | 0.0 |
| Real GDP, % change | 1.9 | 3.1 | 2.2 | 2.1 | 1.4 | 1.3 |
| CPI inflation (%) | 2.6 | 1.5 | 0.1 | 0.7 | 2.7 | 2.1 |
| Unemployment rate | 7.6 | 6.2 | 5.4 | 5.0 | 5.5 | 5.7 |

e--Estimate. f--Forecast. Sources: S&P, Eurostat, OECD, Department for Communities and Local Government, ONS.

Chart 37

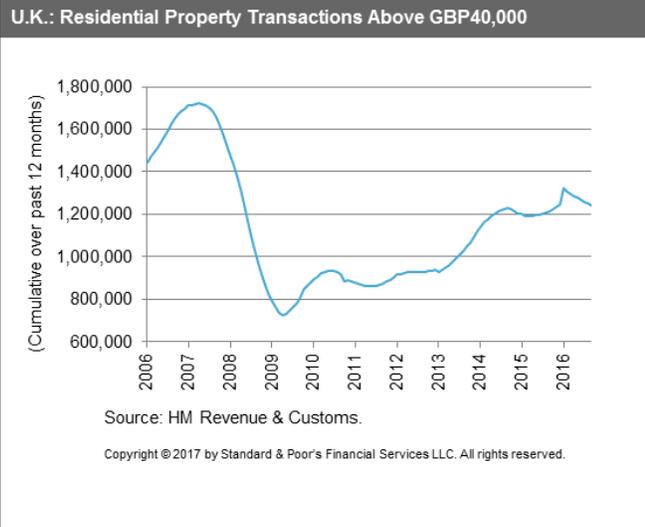


Chart 38

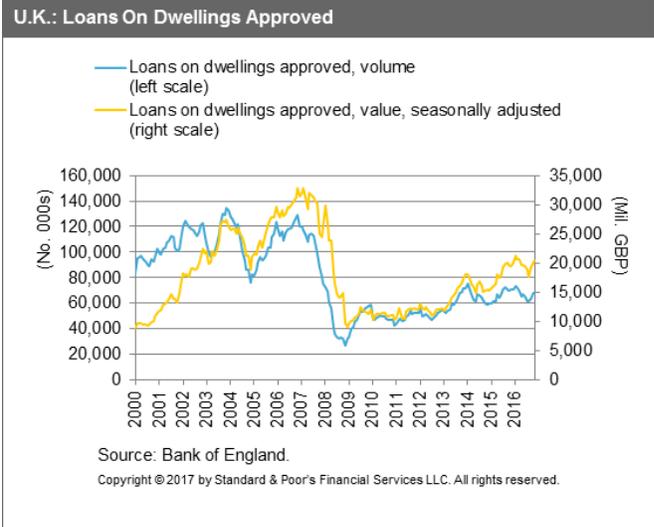


Chart 39

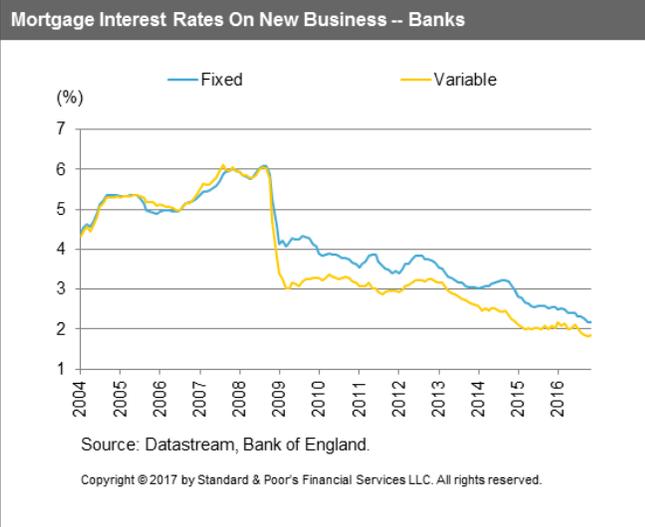
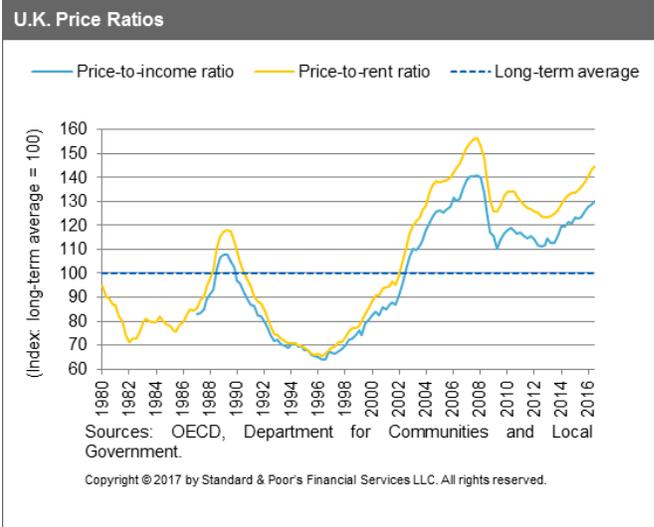


Chart 40



Research contributor: Sarah Limbach

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