1 Macro-financial and credit environment

Macro-financial conditions *have remained challenging in the euro area amid continued external risks. Concerns regarding the state of the global economy and the soundness of macro-financial fundamentals in major emerging markets have been compounded by uncertainties surrounding the medium and long-term economic, political and institutional consequences of the UK referendum vote and by potential future policy changes under the next US administration. In addition, elevated geopolitical tensions and heightened political uncertainty amid busy electoral calendars in major advanced economies have the potential to reignite global risk aversion and to trigger a major confidence shock, thereby weighing on the underlying global and euro area growth momentum.*

Sovereign stress *has remained contained in the euro area against the backdrop of the ongoing economic recovery and favourable sovereign financing conditions in terms of both pricing and duration. Nonetheless, sovereign debt sustainability risks remain elevated in some countries despite the declining path seen at the aggregate euro area level. The potential for a slowdown in or reversal of fiscal and structural reform efforts amid heightened political uncertainty is a key challenge in this respect.*

In line with overall economic conditions, the euro area **non-financial private sector** *has continued to recover, supported by favourable financing conditions, but a still high stock of legacy debt in several countries continues to weigh on the underlying momentum. Looking ahead, the ongoing economic recovery should underpin improving income and earnings prospects for households and non-financial corporations. This, together with high liquid asset holdings and the low interest rate environment, should help support the ongoing process of balance sheet repair and mitigate the risks for those euro area countries with elevated levels of non-financial private sector debt.*

The recovery of euro area **property markets** *has continued in both the residential and commercial property segments. While overall euro area residential property price valuations are broadly in line with fundamentals, prime commercial property valuations remain well above long-term averages. Continued favourable financing conditions and gradually improving economic prospects should underpin the sustainability of the ongoing recovery, but buoyant developments in some countries and asset classes need to be carefully monitored in the context of the current weak growth and low-yield environment.*

1.1 Steady, but modest, euro area economic recovery, despite continued headwinds

The euro area economic recovery has retained its momentum in the first three quarters of 2016 despite some headwinds. Domestic demand continued to be the backbone of economic growth, supported by the ECB's accommodative monetary

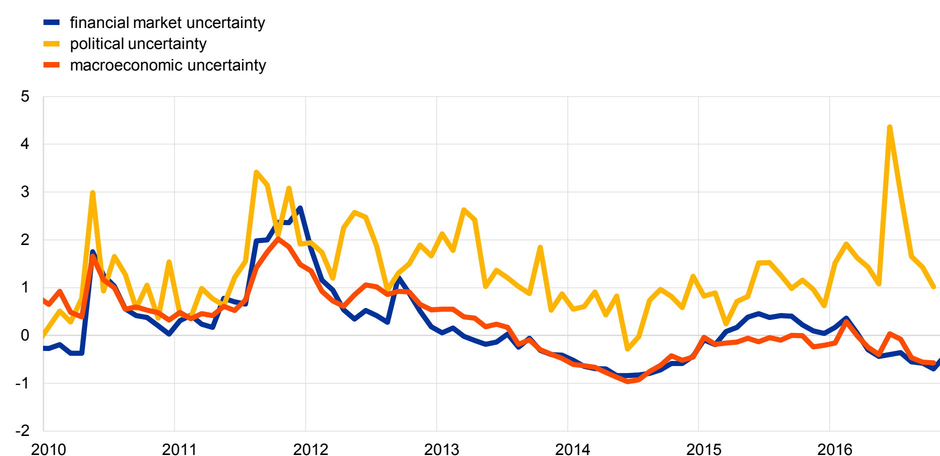
policy measures and a mildly expansionary fiscal stance. Even though overall export dynamics remained muted in a persistently weak external environment, economic growth nonetheless benefited from a small contribution of net exports, partly owing to still positive lagged effects of movements in the effective exchange rate of the euro. Despite the outcome of the UK referendum and the following temporary pick-up in political uncertainty at both the national and EU level, euro area business and consumer sentiment, financial market volatility and overall macroeconomic uncertainty have remained rather resilient so far (see **Chart 1.1**), leaving the prospects for the ongoing recovery largely intact.

Chart 1.1

Political and financial market uncertainty have picked up temporarily in the euro area following the UK referendum vote

Macroeconomic and political uncertainty as well as financial risk aversion in the euro area

(Jan. 2010 – Nov. 2016; standard deviations from mean)



Sources: Consensus Economics, Baker, Bloom and Davis (2013), European Commission, ECB and ECB calculations.
Notes: Mean for the period Q1 1999 – Q4 2007. Macroeconomic uncertainty is captured by examining a number of measures of uncertainty compiled from various sources, namely: (i) measures of economic agents' perceived uncertainty about the future economic situation based on surveys; (ii) measures of uncertainty or of risk aversion based on financial market indicators; and (iii) measures of economic policy uncertainty. Measures of economic policy uncertainty are taken from Baker, S., Bloom, N. and Davis, S., "Measuring Economic Policy Uncertainty", Chicago Booth Research Paper No 13/02, January 2013. For further details on the methodology, see "How has macroeconomic uncertainty in the euro area evolved recently?", *Monthly Bulletin,* ECB, October 2013.

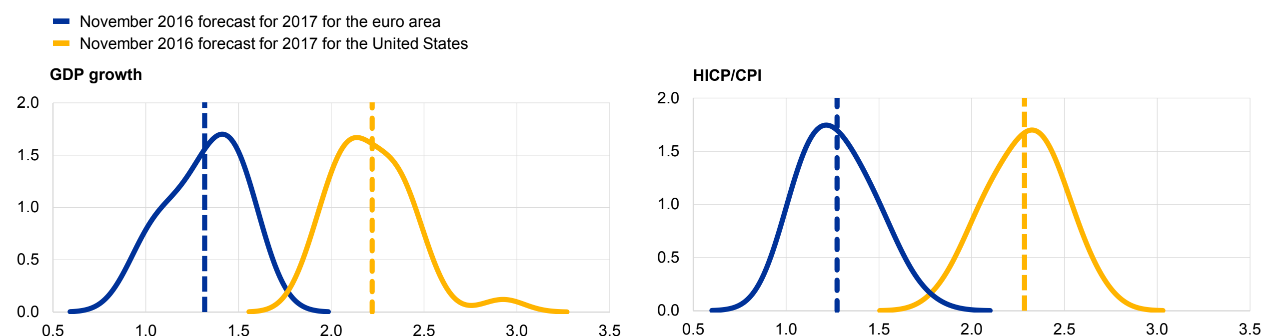
The euro area economic recovery is expected to proceed at a moderate but steady pace. Domestic demand remains supported by the ongoing pass-through of ECB monetary policy stimulus to the real economy. Favourable financing conditions as well as improvements in the demand outlook and in corporate profitability continue to promote a recovery in investment, while sustained employment gains underpin private consumption. By contrast, the necessary balance sheet adjustments in a number of sectors and a sluggish pace of structural reform implementation continue to weigh on the euro area economic recovery. The September 2016 ECB staff macroeconomic projections for the euro area envisage real GDP growth of 1.7% for 2016, followed by an expansion of 1.6% in both 2017 and 2018. Despite the ongoing recovery, a weak growth environment in the euro area continues to contrast with more buoyant developments in other major advanced economies, notably the United States, amid uncertainty regarding the strength and pace of economic expansion as well as inflation prospects (see **Chart 1.2**).

Chart 1.2

Low nominal growth expectations for the euro area contrast with more benign conditions in the United States

Distribution of the 2017 real GDP growth and HICP/CPI forecasts for the euro area and the United States

(probability density)



Sources: Consensus Economics and ECB calculations.

Downside risks to the euro area growth outlook continue to relate mainly to the external environment. Uncertainties surrounding developments in emerging markets remain amid cyclical and structural headwinds in key emerging economies. A further slowdown of the Chinese economy, in particular, has the potential to affect the euro area economy via trade and confidence channels, as indicated by an increase in the cross-border correlation of financial stress (see **Box 1**). From a financial stability perspective, additional headwinds relate to a possible intensification of geopolitical tensions, a re-emergence of sovereign stress at the euro area country level as well as a further rise in uncertainty as reflected by heightened global risk aversion, increased financial market volatility and elevated political uncertainty at the national and supranational levels. In particular, the upcoming UK-EU negotiations remain subject to considerable uncertainty not only in terms of duration and outcome, but also their long-term economic impact.

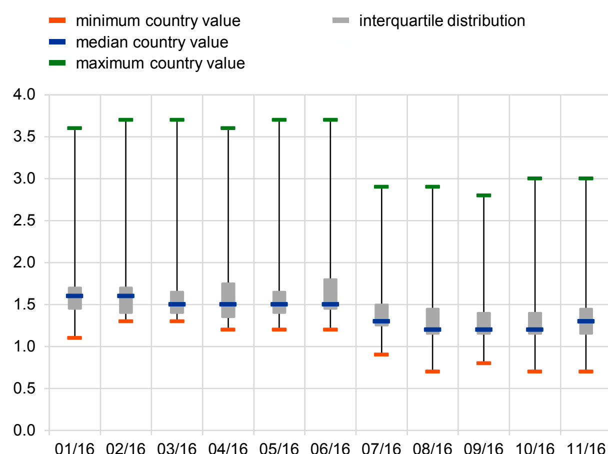
Fragmentation at the country and sector levels remains challenging. The strength of the euro area recovery has remained uneven at the country level, as indicated by the relatively wide cross-country variation of projected GDP growth rates for 2017 (see **Chart 1.3**), with a decreasing upward skew given the downward revision of 2017 real GDP growth forecasts in particular (but not only) for Ireland following the UK referendum vote. Although the level of output in the euro area has reached its pre-crisis level, several countries still remain below their respective pre-crisis levels. Similarly, variation across sectors remains marked, with value added and employment in industry, construction and financial services still below pre-crisis levels, while they expanded strongly in some segments of the services sectors, such as information and communication. In line with the ongoing gradual recovery, labour market conditions have continued to improve. That said, continued labour market slack (predominantly, albeit not only) in countries most affected by the financial crisis continues to contrast with relatively tight labour markets in other euro area countries, although the dispersion across countries has declined considerably since mid-2013 (see **Chart 1.4**).

Chart 1.3

Overall economic prospects continue to diverge considerably at the country level…

Distribution of real GDP growth forecasts in the euro area for 2017

(Jan. 2016 – Nov. 2016; percentage change per annum)



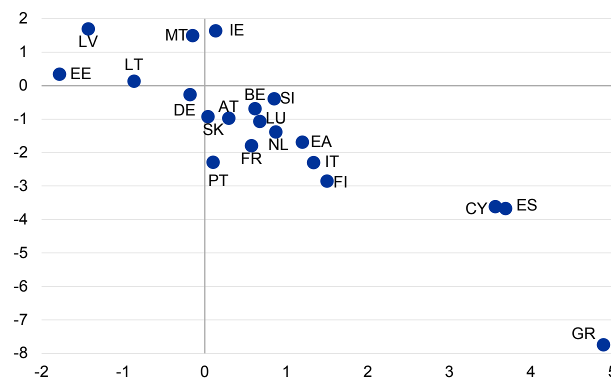
Sources: Consensus Economics and ECB calculations.
Note: The chart shows the minimum, maximum, median and interquartile distribution across the 11 euro area countries surveyed by Consensus Economics (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain).

Chart 1.4

…amid continued economic and labour market slack in some countries

Unemployment gap (x-axis) and output gap (y-axis) across the euro area

(2015)



Source: European Commission (AMECO database).
Notes: The unemployment gap is calculated as the difference between the headline unemployment rate and the non-accelerating wage rate of unemployment (NAWRU). Output and unemployment gap estimates are surrounded by some degree of uncertainty and can be influenced by both structural and non-structural factors.

Low inflation outturns continue to weigh on nominal growth prospects. Euro area headline inflation has remained at low levels since the publication of the last FSR, while most measures of underlying inflation have not yet shown clear signs of an upward trend. Nevertheless, the current low inflation environment has not become entrenched in second-round effects on wage and price-setting amid resolute ECB policy action (see **Chart 1.5**). According to the September 2016 ECB staff macroeconomic projections for the euro area, HICP inflation is expected to average 0.2% in 2016, strongly dampened by a negative contribution from energy inflation related to the past sharp fall in oil prices. As this base effect unwinds, inflation is expected to increase substantially to 1.2% in 2017. The ongoing economic recovery, supported by the ECB's monetary policy measures, and the decline in economic slack are seen to support a further increase in headline inflation to 1.6% in 2018.

External rebalancing in the euro area has continued, but stock imbalances remain high in some countries. Despite significant and sustained current account improvements since 2008, net foreign liabilities of countries most affected by the financial crisis – notably Cyprus, Greece, Portugal and Spain – have remained stubbornly high in the post-crisis period (see **Chart 1.6**). This persistence of external stock imbalances can be explained by the gradual nature of the current account adjustment and low nominal GDP growth. This notwithstanding, many euro area debtor countries have started to register gradual improvements in their net international investment positions in the most recent years on the back of current account surpluses and an economic recovery. The longer-term prospects for external rebalancing depend on a number of determinants – in particular, improvements in total factor productivity, which require the continuation of structural reforms to help

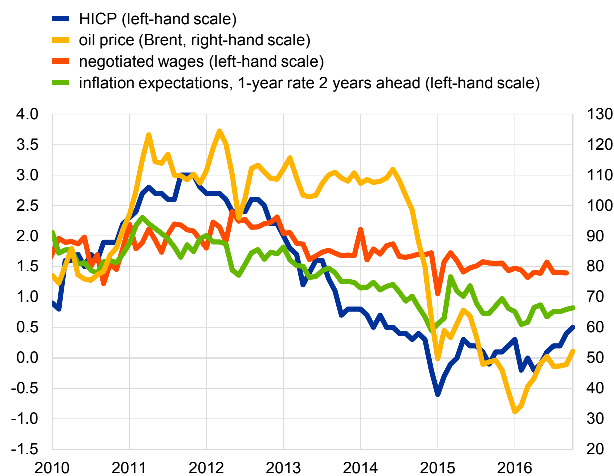
enhance the euro area's medium-term growth potential and reduce fragmentation across the euro area.

Chart 1.5

Risks of a prolonged period of low inflation have remained elevated

Developments in the HICP, market-based inflation expectations, negotiated wages and the oil price (Brent)

(Jan. 2010 – Oct. 2016; percentage, annual percentage change, USD per barrel)



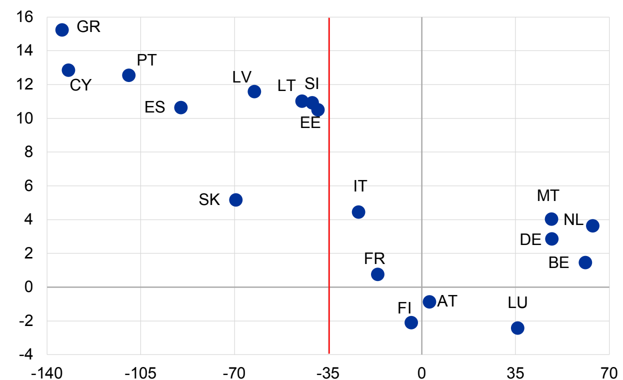
Sources: Bloomberg and ECB.

Chart 1.6

External rebalancing has continued across the euro area, but stock imbalances remain in some countries

Net international investment position in 2015 (x-axis) and the change in the current account balance between 2008 and 2015 (y-axis)

(2015, 2008-15; percentage of GDP)



Sources: Eurostat and ECB.
Notes: The red vertical line shows the threshold of 35% of GDP for net foreign liabilities, which is used in the scoreboard of the European Commission's macroeconomic imbalance procedure to signal potential stock imbalances. Ireland is excluded.

The world economy remains on a low growth trajectory, but is expected to gain traction gradually. Economic activity in advanced economies has continued on a stable, but still modest, path, while having proved fairly resilient to the bouts of volatility surrounding the UK referendum vote. At the same time, economic growth in emerging markets has remained relatively weak from a historical perspective, amid tentative signs of stabilisation in major emerging economies hard hit by the recent commodity price shock (see **Chart 1.7**). Looking ahead, global growth is expected to improve, but to remain muted, with the risks to the outlook remaining on the downside. Inter alia, they relate to a potentially more pronounced slowdown in emerging economies, notably China, as domestic and external imbalances adjust. Additional downside risks may stem from a tightening of global financial conditions, a more severe impact from the UK referendum than expected as well as heightened (geo)political uncertainties in many corners of the world.

Global commodity markets have moved sideways amid continued volatility. Oil price increases have paused following the firm recovery from a ten-year low in the first half of 2016 (see **Chart 1.8**), with the price predominantly fluctuating within the USD 40-50 per barrel range. The recovery has helped to attenuate the financial stability concerns surrounding the oil industry and to ease macro-fiscal pressures on oil-exporting emerging economies. Alongside the continued global oil supply overhang, oil price developments have continued to be driven predominantly by

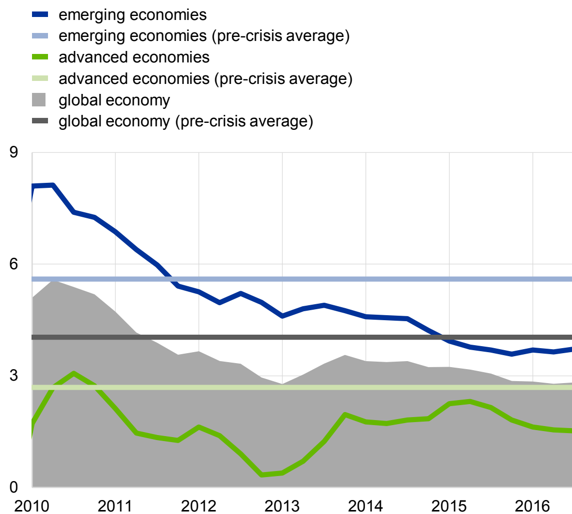
lower demand as a result of the slowdown in emerging economies and uncertainties regarding the outlook for oil market fundamentals.

Chart 1.7

Global growth remains weak amid signs of a bottoming-out in emerging market economies

Real GDP growth across the globe

(Q1 2010 – Q3 2016; annual percentage change)



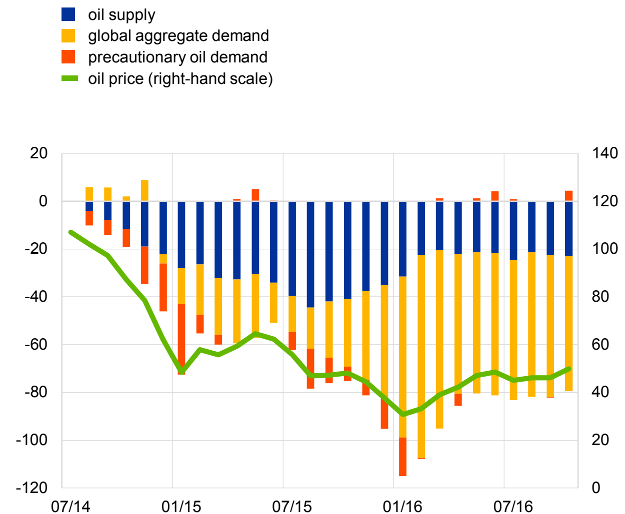
Sources: Haver Analytics and ECB calculations.

Chart 1.8

Oil prices have stabilised, with demand-side factors still predominantly at play

Oil prices and their determinants

(July 2014 – Sep. 2016; cumulated contributions of the different oil shocks in percentage points, USD per barrel)



Sources: Thomson Reuters Datastream and ECB calculations.
Notes: The historical breakdowns of oil prices have been normalised to start at zero in July 2014, when Brent crude oil prices started dropping. A declining contribution indicates that a specific "oil shock" contributed to lowering oil prices and vice versa. The breakdown is based on Kilian, L. and Murphy, D. P., "The role of inventories and speculative trading in the global market for crude oil", *Journal of Applied Econometrics*, Vol. 29(3), 2004, pp. 454-478.

The economic recovery in advanced economies is proceeding at a moderate pace. Economic growth in advanced economies outside the euro area has continued to be supported by relatively low oil prices, improving labour market conditions, resilient confidence, accommodative monetary policies as well as receding headwinds from private sector deleveraging and fiscal consolidation in several countries. The underlying multi-speed recovery across countries is increasingly translating into expectations of divergent monetary policies, as the prospect of withdrawal of monetary policy accommodation in the United States contrasts with further easing in Japan and the United Kingdom. The outcome of the UK referendum marked the materialisation of a downside risk that triggered a rise in uncertainty regarding the future economic prospects of advanced economies (see **Chart 1.9**), which – similar to the ensuing financial market volatility – proved rather short-lived (except for the United Kingdom), with limited global economic consequences so far.

While growth prospects appear resilient in most advanced economies, downside risks to the growth outlook remain. Risks to the growth outlook remain on the downside amid continued external risks, in particular those related to a further slowdown of emerging economies and policy uncertainties surrounding the economic transition in China. Moreover, ensuring the long-term sustainability of public finances also remains a challenge for some countries outside the euro area (e.g. the United

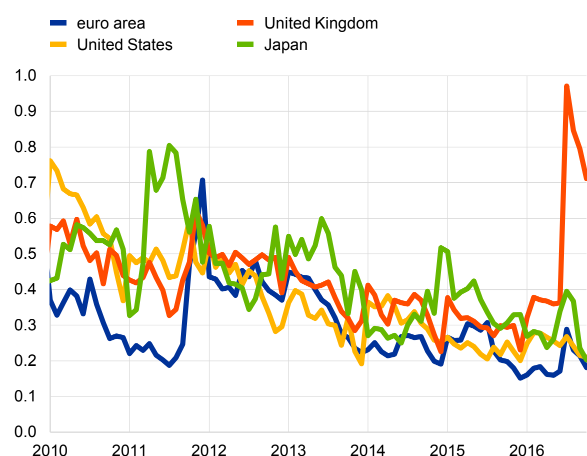
States and Japan), while others (e.g. the United Kingdom, Sweden and Denmark) are still confronted with legacy macro-financial vulnerabilities (e.g. high private sector indebtedness). In addition, rising geopolitical tensions, more pronounced uncertainty surrounding the length and outcome of UK-EU negotiations as well as heightened political uncertainty in the context of upcoming votes and potential policy changes under the next US administration could weigh on the growth outlook.

Chart 1.9

The uncertainty surrounding the future economic prospects of advanced economies has spiked temporarily following the UK referendum vote

Disagreement on one-year-ahead GDP forecasts among professional forecasters

(Jan. 2010 – Oct. 2016; dispersion index)



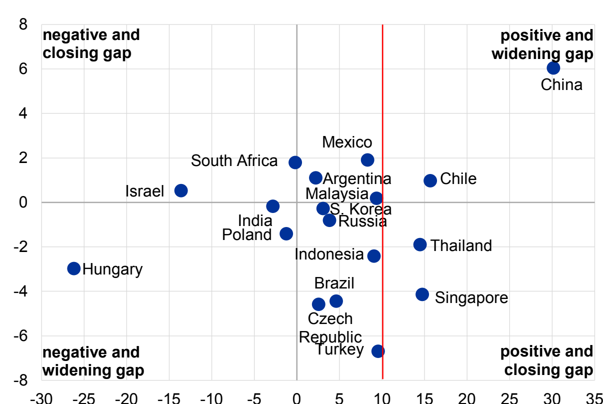
Sources: Consensus forecasts and ECB calculations.

Chart 1.10

Private credit dynamics remain a source of concern in a number of emerging economies

Credit gaps in emerging economies (x-axis) and their annual change (y-axis)

(Q1 2016; percentage of GDP, percentage points)



Sources: BIS and ECB calculations.
Notes: Credit gaps are defined as the deviation from the one-sided Hodrick-Prescott filter trend for domestic credit to GDP. The red vertical line shows the threshold of 10% of GDP for the absolute level of the credit gap beyond which the BIS deems the level of private credit as excessive.

Economic activity in emerging economies continued to be subdued. Economic momentum has remained weak in emerging markets against the backdrop of the ongoing rebalancing of the Chinese economy from an export-led to a more consumption-driven growth path and the ongoing adjustment of commodity-exporting emerging economies to past commodity price falls. That said, there are some signs that activity in major commodity exporters is bottoming out after deep recessions (e.g. in Brazil and Russia), boding well for a gradual recovery going forward. Structural and cyclical challenges in a number of emerging economies are accentuated by underlying macro-financial imbalances, in particular in countries in the late phase of the credit cycle (see **Chart 1.10**). Capital flows to emerging markets have proved resilient and accelerated in the aftermath of the UK referendum (see **Chart 1.11**). Decomposing the capital inflows into underlying driving factors, the rebound – while remaining somewhat below the quarterly average over the past 15 years – can largely be explained by a pick-up in global risk appetite and possibly the related search-for-yield flows out of advanced economies. Market expectations about the stance of US monetary policy have in the first three quarters of 2016 been broadly neutral to aggregate inflows after several quarters of perceived tightening.

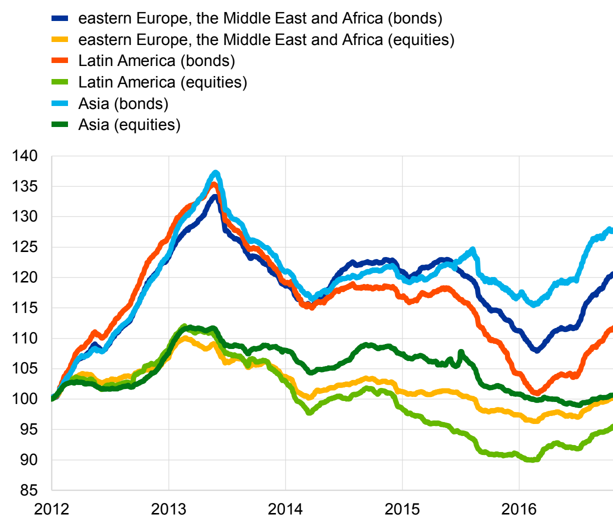
Persistently smaller growth differentials with advanced economies continue to make a negative contribution to emerging market flows (relative to their sample average), suggesting that the rebound in capital flows does not yet reflect the fundamental economic strength of emerging economies (see **Chart 1.12**).

Chart 1.11

Capital inflows to emerging economies have picked up markedly as of mid-2016…

Equity and bond flows to emerging market economies

(Jan. 2012 – Nov. 2016; index: Jan. 2012 = 100)



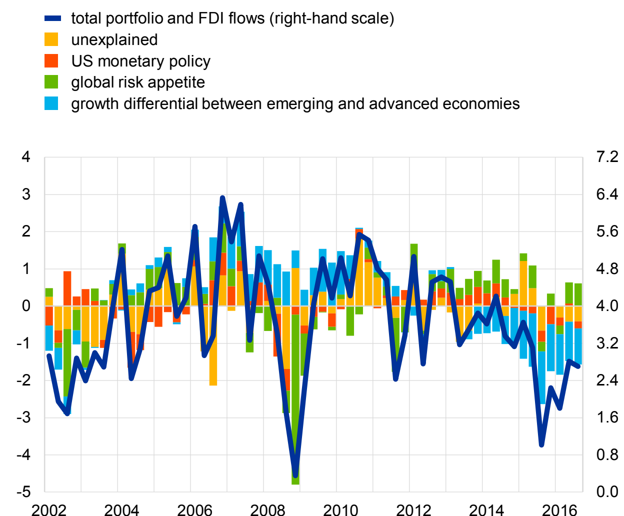
Source: EPFR.
Notes: Bonds include both sovereign and corporate bonds. Indices are constructed based on relative flows over total net assets in order to control for the fact that the number of funds is not constant over time.

Chart 1.12

…predominantly driven by global risk appetite amid sluggish relative growth in emerging economies

Aggregate portfolio and foreign direct investment flows to emerging economies by underlying driving factors

(Q1 2002 – Q3 2016; total portfolio and foreign direct investment flows as a percentage of GDP, deviation from long-term average)



Sources: Haver Analytics, Thomson Reuters Datastream, Institute of International Finance and ECB calculations.
Notes: Decomposition derived from an ordinary least squares (OLS) regression of quarterly total emerging market portfolio and FDI flows as a percentage of emerging market GDP on: (i) a sample percentile of the one-year/three-month US sovereign yield spread, capturing expectations about changes in short-term interest rates; (ii) risk appetitive measured by the level and the first difference of the VIX Index; (iii) year-on-year growth differentials between emerging and advanced economies; and (iv) "unexplained" which refers to the regression residual. The left-hand scale shows the deviation of the regressor variables (i)-(iv) from the sample average.

Risks to the emerging market growth outlook are tilted to the downside. First and foremost, the gradual deceleration of the Chinese economy may imply adverse knock-on effects for other Asian and Latin American economies with close trade and financial links with China. Several emerging economies which are dependent on capital inflows also still face the challenge of tighter external financing conditions associated with the expected gradual withdrawal of monetary accommodation in the United States, while some countries and sectors with notable exposures to foreign currency-denominated debt may be vulnerable to marked downward exchange rate pressures vis-à-vis the US dollar. Furthermore, past credit excesses and the related debt accumulation may expose many emerging economies to the risk of sudden capital flow reversals, ensuing corrections in asset prices, sharp exchange rate movements and increasing credit risk should growth prospects deteriorate further. This could unearth more general concerns about the macro-financial health of major emerging economies and adversely affect global confidence. Finally, high political uncertainty, geopolitical tensions as well as possible adverse spillovers stemming

from potential policy changes under the next US administration (e.g. trade policy) could also weigh on growth prospects in a number of regions.

All in all, macro-financial risks to euro area financial stability stem from a combination of external and domestic factors. The weak cyclical conditions together with a structural rebalancing towards a more moderate growth path in emerging economies, heightened (geo)political tensions around the world, uncertainties about the length and outcome of UK-EU negotiations and diverging monetary policies across major advanced economies comprise key risk areas. These factors may not only undermine the sustainability of the recovery at both the euro area and global levels, but also have the potential to affect confidence and trigger renewed tensions in global financial and commodity markets and to prompt a disorderly unwinding of global search-for-yield flows. Macro-financial risks also continue to originate from within the euro area. The ongoing balance sheet repair in the private and public sectors in several countries, continued (albeit diminishing) fragmentation of real economic growth prospects across countries and the sluggish pace of structural reforms continue to restrain euro area growth momentum.

Box 1
Is euro area financial stress becoming more global?

Financial stress indices have become a common tool to measure the current state of (in)stability in an economy's financial system as a whole or major parts of it.[2] Recent developments in a particular variant of such an index for the euro area, namely the composite indicator of systemic stress (CISS)[3], reveal three distinct features: *First*, since mid-2013, the volatility of the CISS has gradually increased, with several large spikes in the last years (see Chart A). This presumably relates to major local and global stress events and may imply heightened risks to financial stability going forward. *Second*, the euro area CISS has displayed a gradual upward trend over this same period. More recently, the immediate stress following the UK referendum outcome lifted the indicator temporarily to levels last observed at the height of the euro area sovereign debt crisis. *Third*, the euro area index's more pronounced swings since 2013 have been correlated with similar movements in other major economic regions – in either the US or Chinese CISS, or both. This may suggest that euro area financial stability conditions have become more intertwined with the international environment.

Understanding the driving factors behind financial stress and the underlying frictions is inherently difficult. For instance, empirical research for the euro area finds that past outcomes for a broad range of macroeconomic and financial variables do not have material predictive power for the CISS.[4] In addition, contemporaneous relationships between financial stress and other variables

[2] For a literature survey, see Kliesen, K. L., Owyang, M. T. and Vermann, E. K., "Disentangling Diverse Measures: A Survey of Financial Stress Indexes", *Federal Reserve Bank of St. Louis Review*, September/October 2012, pp. 369-398.

[3] The euro area CISS was first published in the special feature on "Systemic risk methodologies", *Financial Stability Review*, ECB, June 2011. Its concept is described in Holló, D., Kremer, M. and Lo Duca, M., "CISS – A composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, March 2012. Regular data updates of the euro area CISS are available from the ECB's Statistical Data Warehouse.

[4] See Kremer, M., "Macroeconomic effects of financial stress and the role of monetary policy: a VAR analysis for the euro area", *International Economics and Economic Policy*, Vol. 13, 2016, pp. 105-138.

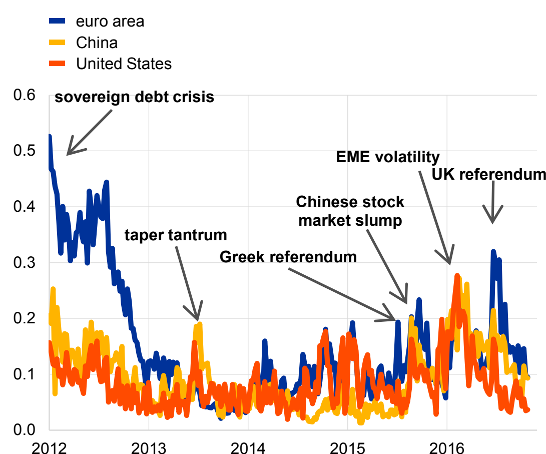
are often weak, and if they show up as stronger, it is not clear how to interpret the direction of causality. For example, the CISS seems to co-move simultaneously with measures of political uncertainty for individual euro area countries and the European Union as a whole. While it is possible that (in particular) extreme levels of financial stress might sometimes raise political uncertainty immediately, the political uncertainty caused by the UK referendum probably drove up financial stress at least temporarily. Survey-based measures of macroeconomic uncertainty in the euro area, by contrast, do not seem to be associated with recent developments in financial stress.

Chart A

Financial stress waxed and waned worldwide…

Composite indicators of systemic stress

(Jan. 2012 – Oct. 2016; weekly data; 0 (minimum) to 1 (maximum) range)



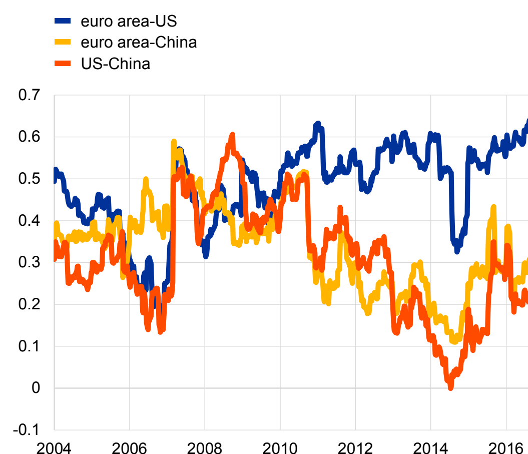
Sources: ECB and ECB calculations.
Note: The CISS methodology is described in Holló, D., Kremer, M. and Lo Duca, M., "CISS – A composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, March 2012.

Chart B

…while becoming more strongly correlated globally, albeit starting from low levels

Time-varying correlation coefficient between weekly changes in the CISS for each pair of countries

(Jan. 2004 – Oct. 2016; weekly data)



Sources: ECB and ECB calculations.
Note: Time-varying correlation coefficients estimated using a multivariate integrated GARCH(1,1) model for weekly changes in the CISS for the euro area, the United States and China.

An exercise decomposing the CISS into constituent components suggests intensified banking problems are a further potential domestic driver of financial stress. Of the five sectors captured by the CISS, the by far strongest contribution to recent changes stems from increased stress in the financial intermediaries sector. The contributions from money, bond, equity and foreign exchange markets are, in contrast, relatively low. Hence, weak profitability and legacy risks in the banking sector may account for the recently more elevated levels of stress in the euro area compared with, for example, the United States or the United Kingdom.

Regarding international factors, there was an increase in the cross-border correlation of financial stress. The time-varying correlation coefficients between weekly changes in the CISS for the euro area, the United States and China show a marked increase in the degree of stress synchronisation for all country pairs since mid-2014 (see Chart B). However, the correlation coefficients picked up from relatively low levels and did not uniformly increase towards historically high values. Nonetheless, the stronger cross-country linkages with respect to financial stress may still suggest an increasing role of global factors for domestic financial stability conditions.

Increased cross-border correlation of financial stress can result from a stronger impact of truly common factors (e.g. global preference shifts) or increased spillover effects from

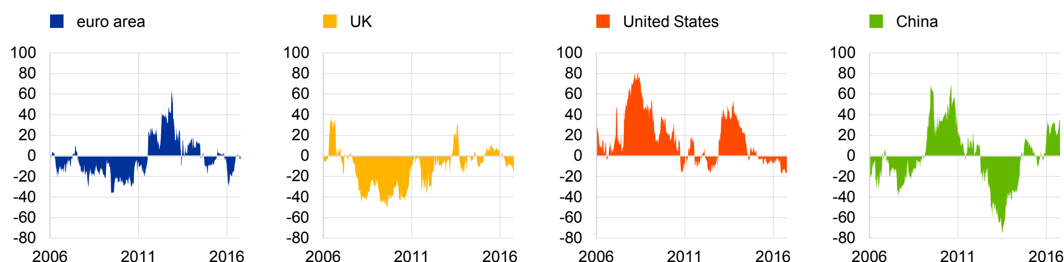
stress originating from abroad. An econometric spillover analysis that disentangles domestic from foreign shock contributions to the forecast error variance of the euro area, US, UK and Chinese CISS finds that when viewed over the full sample (2004-16), the United States clearly dominated as the main source of international financial stress, i.e. was a net sender of stress (see Chart C). This holds particularly true for the global financial recession (2007-09) as well as for the period from 2013 to mid-2014 when market participants started to price in expectations about an imminent tightening cycle in US standard and non-standard monetary policy ("taper tantrum"). That said, the euro area became the dominant source of stress during the sovereign debt crisis, while being a net receiver of stress at other times. The latter fact is even more pronounced for the United Kingdom, although it emerged as a moderate net sender of stress in most of 2015.[5] Finally, China became the sole net sender of stress in 2016 in the context of increasing financial strains in its domestic financial sector. The results also suggest that China contributed strongly to the international transmission of financial stress shocks in the years 2009 and 2010. In those years, however, China seemed to act like a stabilising force since its stress index fell more rapidly and strongly from the global crisis peaks than in the other three economies.

Chart C

Stronger stress spillovers from China

Net forecast error variance contributions at the country level

(Jan. 2006 – Oct. 2016; weekly data, percentage of total forecast error variance)



Sources: ECB and ECB calculations.
Notes: Spillovers computed within the vector autoregression (VAR) forecast error variance decomposition framework as suggested by Diebold, F. X. and Yilmaz, K., "Better to give than to receive: predictive directional measurement of volatility spillovers", *Economic Journal*, Vol. 119, 2012, pp. 158-171. The VAR with four lags is estimated over a two-year moving window for weekly data of the euro area, US, UK and Chinese composite indicators of systemic stress. The time series show for each country the sum of the contributions of shocks in that country to the forecast error variance in the other three countries ("spillovers sent"), less the sum of the contributions of shocks in the other countries to the forecast error variance of the country at hand ("spillovers received").

All in all, the recently somewhat more elevated levels of financial stress in the euro area – as measured by the CISS – seem to reflect a combination of both domestic and external factors. In particular, increased tensions in the domestic financial intermediaries sector as well as persistent international stress spillovers, in particular originating from China in line with the country's increased role in global trade and financial flows, appear to be major explanatory factors. Despite this rise in the euro area measure of financial stress and empirical studies that show that the CISS has strong and robust predictive power for economic activity, most recent levels of financial stress are still relatively low by historical standards and thus not likely to pose material risks for real economic activity in the euro area.[6]

[5] The potential spillovers of financial stress from the UK referendum in June 2016 are too recent to have a statistically significant impact within the applied spillover regression framework.

[6] See Kremer, M., "Macroeconomic effects of financial stress and the role of monetary policy: a VAR analysis for the euro area", op. cit.

1.2 Latent sovereign debt sustainability concerns despite benign market conditions

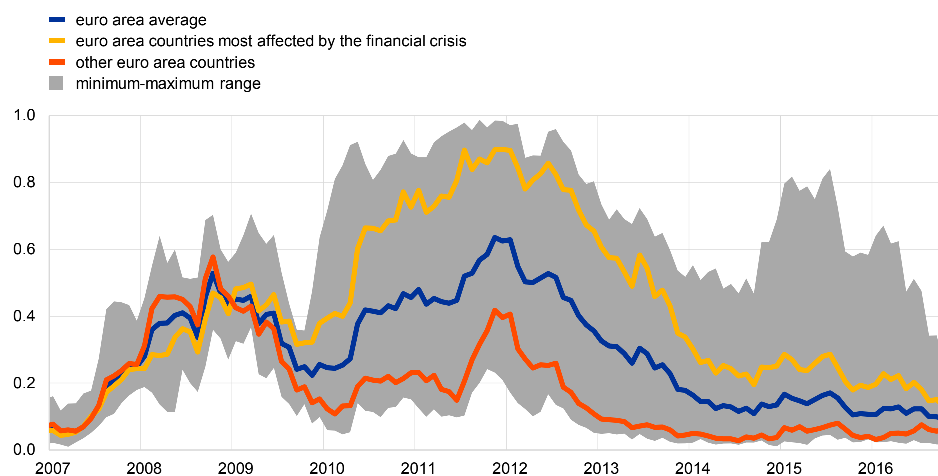
Stress conditions in euro area sovereign bond markets continue to be relatively benign, amid decreasing cross-country heterogeneity. Measures of systemic stress in euro area sovereign bond markets have remained fairly stable and hovered around levels seen before the global financial crisis in 2008. The euro area aggregate continues to mask diverging underlying country trends, despite an ongoing gradual convergence in sovereign stress conditions between euro area countries most affected by the financial crisis and other euro area countries (see **Chart 1.13**). Benefiting from the ECB's public sector purchase programme, euro area sovereign stress conditions appear to have been largely insulated from both country-specific issues (e.g. uncertainty regarding programme implementation in Greece) and other risk factors linked to political uncertainty. Similarly, the various episodes of repricing of European bank stocks in 2016, for example in the context of country-level bank vulnerabilities (e.g. in Portugal and Italy) or the publication of the European Banking Authority stress-test results, have not durably translated into higher sovereign stress at the euro area level. This may indicate a relative weakening of the sovereign-bank nexus, although there are some lingering market uncertainties regarding the implementation of the bail-in rules under the Bank Recovery and Resolution Directive in place since January 2016.

Chart 1.13

Sovereign bond market tensions have remained contained across the euro area

Composite indicator of systemic stress in euro area sovereign bond markets

(Jan. 2007 – Oct. 2016)



Sources: ECB and ECB calculations.
Notes: The SovCISS aims to measure the level of stress in euro area sovereign bond markets. It is available for the euro area as a whole and for 11 individual euro area countries (Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal and Spain). Countries most affected by the financial crisis comprise Greece, Ireland, Italy, Portugal and Spain, while other euro area countries include Austria, Belgium, Germany, Finland, France and the Netherlands. The SovCISS combines data from the short end and the long end of the yield curve (two-year and ten-year bonds) for each country, i.e. two spreads between the sovereign yield and the euro swap interest rate (absolute spreads), two realised yield volatilities (the weekly average of absolute daily changes) and two bid-ask bond price spreads (as a percentage of the mid-price). The aggregation into country-specific and euro area aggregate SovCISS is based on time-varying cross-correlations between all homogenised individual stress indicators pertaining to each SovCISS variant following the CISS methodology developed in Hollo, D., Kremer, M. and Lo Duca, M., "CISS – a composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, March 2012.

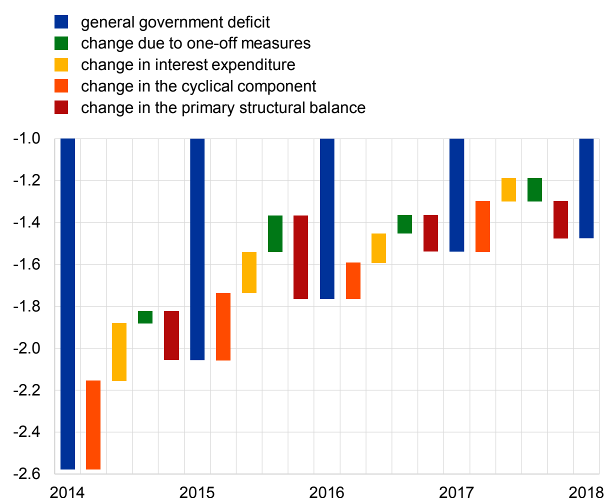
Headline fiscal balances are set to improve further on the back of the ongoing economic recovery and the low interest rate environment. Having fallen from 2.6% of GDP in 2014 to 2.1% of GDP in 2015, the fiscal deficit is expected to decrease further in 2016 at the aggregate euro area level, albeit at a slower pace than in previous years. According to the European Commission's autumn 2016 forecast, the aggregate euro area fiscal deficit is projected to fall to 1.9% in 2016 and further to 1.5% in 2017, while remaining broadly stable in 2018. The improvement in the headline balance over 2016-18 is predominantly driven by gradually improving cyclical conditions and, to a lesser extent, lower interest expenses, which more than compensate for the loosening fiscal stance (see **Chart 1.14**).

Chart 1.14

Headline fiscal balances continue to improve, benefiting from the ongoing economic recovery…

General government deficit in the euro area

(2014-18; percentage of GDP)



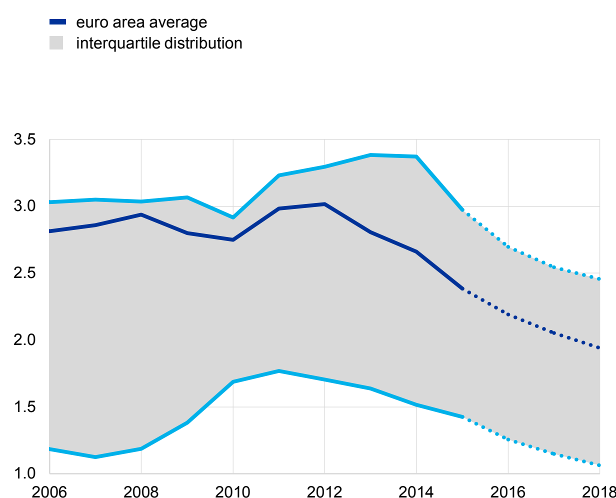
Sources: European Commission (AMECO) and ECB calculations.

Chart 1.15

...and a falling interest payment burden in a low interest rate environment

Interest expenditure of the general government

(2006-18; percentage of GDP)



Sources: European Commission (AMECO) and ECB calculations.
Note: Dotted lines indicate forecasts.

The cyclical support is seen to endure despite the UK leave vote and its – so far relatively limited – potential negative repercussions on the conjunctural conditions in the euro area (see Section 1.1). At the same time, interest expenditures are forecast to drop to 1.9% of GDP by 2018 against the background of the low interest rate environment, down from somewhat more than 3% of GDP in 2012 at the height of the euro area sovereign debt crisis, thereby further alleviating the interest payment burden on euro area sovereigns (see **Chart 1.15**). At the country level, headline fiscal balances are expected to improve – at least slightly – in almost all euro area countries over the forecast horizon. Headline fiscal deficits are expected to fall below the Maastricht Treaty reference value of 3% of GDP by 2018 in all euro area countries, except France and Spain. Three countries are expected to post budget surpluses (i.e. Germany, Greece and Luxembourg). Despite the expected overall improvement in the euro area fiscal position, underlying challenges persist. In particular, structural budget balances are projected by the European Commission to deteriorate in a number of countries over 2016-18, further challenging the

achievement of the medium-term objectives in most euro area countries. Moreover, there are risks that financial sector support may prove deficit-increasing in some countries.

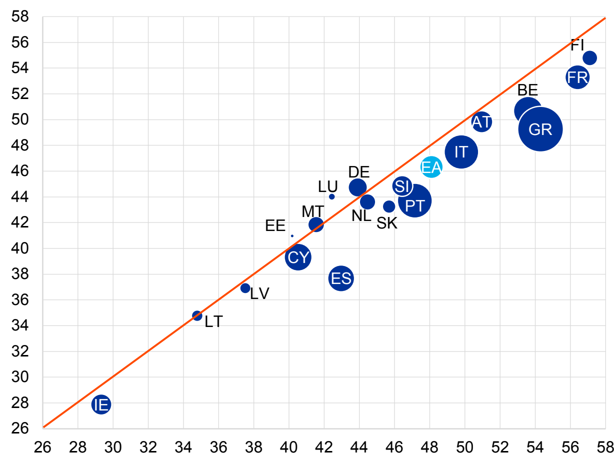
Structural and fiscal reform efforts appear to have lost momentum as urgency has dwindled amid low sovereign financial market stress. The underlying fiscal stance is expected to be moderately expansionary for the euro area as a whole in 2016-18, amid a high degree of cross-country heterogeneity. As improving cyclical economic conditions and lower interest payments alleviate the burden on governments, further progress with fiscal reforms would help generate fiscal buffers for effective countercyclical policies in future downturns. Currently, only a few euro area countries have fiscal space. Cross-country heterogeneity also prevails in terms of the size of the government sector in the euro area (see **Chart 1.16**), although efforts are underway in several countries to review spending in order to rationalise public expenditure. Altering the composition of the budget may also help to create fiscal space by cutting distortionary taxes and unproductive expenditure. This could make it possible to boost capital expenditure (e.g. investment), which has dropped quite substantially since the onset of the financial crisis in most countries (see **Chart 1.17**). In addition, deeper structural reforms would bring long-term benefits by lifting growth potential without endangering fiscal solvency.

Chart 1.16

Despite efforts to rationalise public expenditure, large differences in government size prevail

General government expenditures (x-axis) and revenues (y-axis) across the euro area

(Q2 2016; percentage of GDP)



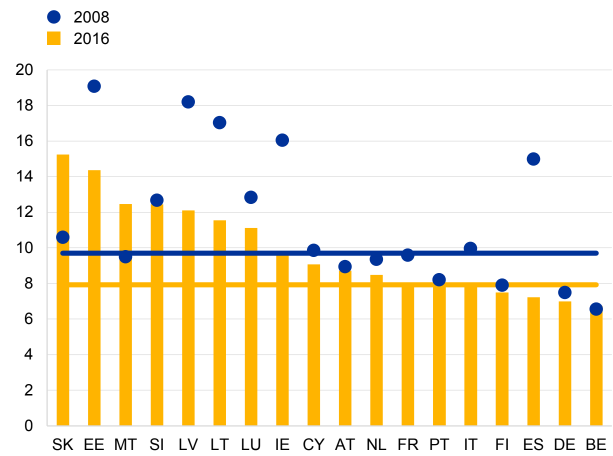
Sources: ECB (Government Finance Statistics) and ECB calculations.
Notes: The size of the bubble indicates the gross general government debt as a percentage of GDP.

Chart 1.17

Boosting capital expenditure could lift growth potential

Share of capital expenditure in total general government expenditure

(2008, 2016; percentages)



Sources: ECB (Government Finance Statistics) and ECB calculations.
Notes: 2008 figures refer to the average value of the four quarters between Q3 2007 and Q2 2008, while the 2016 figures indicate values for the period Q3 2015-Q2 2016. The horizontal lines represent the euro area averages for the two observation periods.

The euro area government debt-to-GDP ratio is expected to continue declining, albeit only gradually. After embarking on a declining trend in 2015, the aggregate euro area government debt-to-GDP ratio is projected by the European Commission to fall further from 91.6% of GDP in 2016 to 90.6% in 2017 and 89.4% in 2018. This trend is supported by the maintenance of the favourable assumptions on the interest

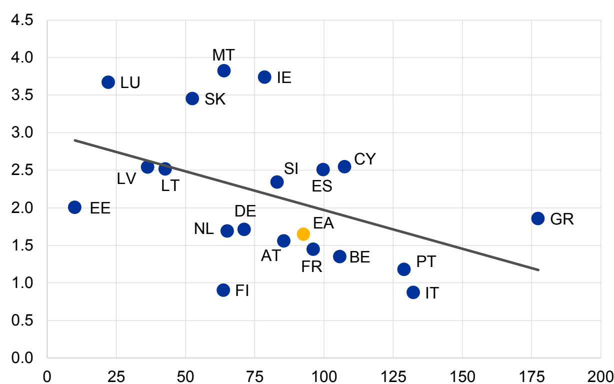
rate-growth differential, primary surpluses and negative debt-deficit adjustments. Nevertheless, some euro area countries under the European Semester surveillance exceeding the 60% of GDP Maastricht Treaty threshold (i.e. Belgium, Spain, France, Italy and Finland) are still projected to see a further – more or less pronounced – rise in their government debt ratios by 2018. Continued primary deficits and/or positive interest rate-growth differentials would, however, complicate putting government debt levels on a sustainable downward path in some other highly indebted countries too (e.g. Italy and Portugal).

Chart 1.18

Debt sustainability concerns remain in a low nominal growth environment...

Gross general government debt in 2015 (x-axis) and average GDP growth forecasts for 2016-18 (y-axis)

(2015, 2016-18; percentage of GDP, percentage)



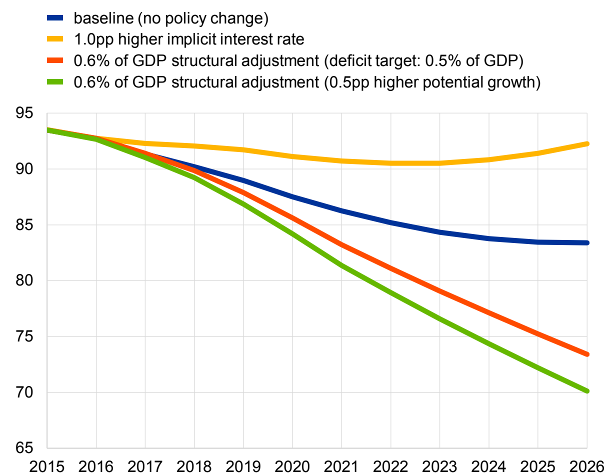
Sources: European Commission and ECB calculations.

Chart 1.19

…and may be accentuated in the event of further shocks

Stylised debt scenarios for the euro area

(2015-26; percentage of GDP)



Sources: European Commission and ECB calculations.
Notes: The baseline scenario for the euro area builds on the assumptions from the European Commission's Fiscal Sustainability Report 2016. Up to 2017, the debt projections build on the European Commission's winter 2016 forecast. As of 2018 (and up to 2026), potential growth is assumed to develop in line with the country-specific paths agreed in the Economic Policy Committee's Output Gaps Working Group. Long-term real interest rates are assumed to converge to 3%. The implicit interest rate on government debt (computed as interest payments on the previous year's debt as a percentage of the current year's debt) is assumed to increase from 2.5% to 3.7% over the simulation horizon. Inflation, as measured by the change in the GDP deflator, is assumed to converge to 2% by 2020 in parallel to the closing of the output gap. The structural balance is assumed to be only affected by the cost of ageing – as projected in the 2015 Ageing Report – and assumed changes in interest spending. In the interest rate shock scenario, a one percentage point level shift in the implicit interest rate is applied as of 2017 over the entire simulation horizon.

Overall, government debt sustainability risks remain elevated amid numerous challenges, not least rising political uncertainty. In the short term, the main challenges to government debt sustainability relate to a prolonged period of low nominal growth (see **Chart 1.18**), residual risks related to financial sector support, as well as insufficient structural and fiscal reforms to durably restore debt sustainability, given heightened political uncertainty in several countries. Regarding the latter, political uncertainty continued to rise not only at the national level given busy electoral calendars in 2017 in major euro area countries, but also at the EU level in the aftermath of the UK referendum. In particular, less reform-oriented and more domestically focused policy agendas may lead to the delay of much needed fiscal and structural reforms and may reignite pressures on more vulnerable sovereigns. In

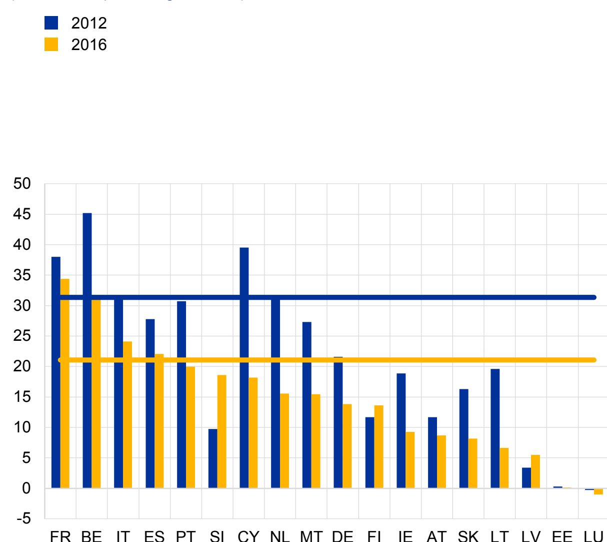
this context, currently generally easy financial conditions – though alleviating fiscal costs – may expose many euro area countries to sudden flow reversals should a risk repricing by market participants take place in the event of the materialisation of a political tail-risk scenario. In the medium-to-long run, these challenges are compounded by vulnerabilities related to the potential rise in interest rates/yields, lower potential GDP growth and ageing-related costs. In particular, a new macroeconomic shock may challenge the sustainability of public finances in the euro area. Under a stylised "no fiscal policy change" scenario, government debt at the euro area level would decline by around 10 percentage points of GDP in the coming decade (see **Chart 1.19**). Structural fiscal adjustments would put the aggregate euro area debt ratio on a steeper declining path, while assuming also a higher potential GDP growth would result in even more favourable debt dynamics. However, simulation results suggest that a lasting interest rate shock would put public debt on an increasing path towards the end of the projection horizon.

Chart 1.20

Government financing needs have fallen considerably since the height of the euro area sovereign debt crisis

Gross general government financing needs in the euro area

(2012, 2016; percentage of GDP)



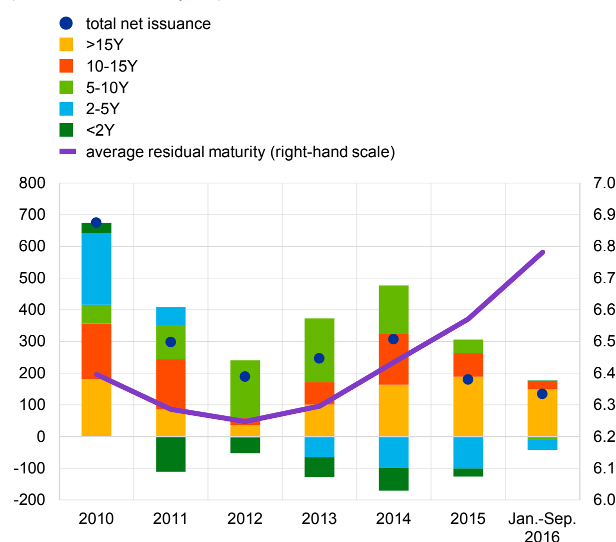
Sources: ECB Centralised Securities Database (CSDB) and ECB calculations.
Notes: The financing need is calculated as the sum of the budget deficit and the gross redemption of outstanding government debt for a given year. For more details on the CSDB, see "New and timely statistical indicators on government debt securities", *Statistics Paper Series*, No 8, ECB, June 2015. The horizontal lines represent the euro area averages for the two observation periods.

Chart 1.21

The shift of issuance activity towards the long end of the maturity spectrum has continued

Issuance of government debt securities by original maturity

(2010-16; EUR billions, years)



Source: ECB Centralised Securities Database (CSDB) and ECB calculations.

Notwithstanding challenges to sovereign debt sustainability, financing conditions have remained favourable in terms of both pricing and duration. Overall, the gross financing needs of euro area governments have dropped from 31.5% of GDP in 2012 at the height of the euro area sovereign debt crisis to around 21% of GDP in 2016 (see **Chart 1.20**). Still, for some euro area countries, debt service needs remain substantial. Overall, the shift in issuance activity towards the long end of the maturity spectrum in most countries in the current low-yield environment has continued. In terms of durations, net issuance of government

securities with maturities below five years remains negative and contrasts with strong increases in issuance activity beyond the 15-year horizon (see **Chart 1.21**). As a result, the average residual maturity of outstanding euro area government debt securities continued to increase, reaching 6.8 years by September 2016 amid sizeable cross-country divergence. Given the current environment of low and further declining (or even negative) government bond yields at short maturities, this trend is likely to continue in the near term, as investors search for higher returns by increasing the duration of purchased assets, while governments aim to lock in long-term financing at low costs.

Available financial assets could be used to cushion sudden increases in sovereign financing needs. Financial assets held by euro area sovereigns are substantial, amounting to 39.2% of GDP in the second quarter of 2016, amid considerable cross-country heterogeneity. At the same time, the market value of consolidated general government liabilities in the euro area was 112.7% of GDP, yielding net debt of 73.5% of GDP. Equity and investment fund shares/units account for the bulk of such financial assets in most euro area countries, suggesting that the sale of state-owned assets could play a role in alleviating debt sustainability concerns if the proceeds were to be used to retire outstanding government debt.

1.3 Favourable financing conditions continue to underpin the recovery of the non-financial private sector

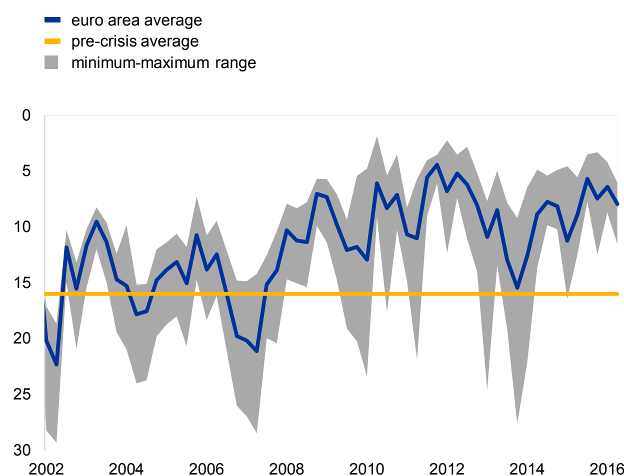
Mirroring overall economic conditions, the income position of euro area households has remained weak, albeit improving. A distance-to-distress indicator – combining balance sheet information with asset price volatility – suggests that overall credit risks related to household balance sheets in the euro area remained at relatively elevated levels in the second quarter of 2016 (see **Chart 1.22**). Disposable income growth of euro area households remained muted in the second quarter, while growth in household net worth accelerated from the previous quarter as a result of lower valuation losses on households' financial asset holdings (reflecting the smaller decline in equity prices compared with the previous quarter) and the continued robust capital gains on real estate holdings (see **Chart 1.23**). Looking ahead, the euro area household sector is expected to recover further, buttressed by relatively resilient household sentiment and confidence as well as improving labour market conditions, even though high unemployment still weighs on households' income prospects in some euro area countries.

Chart 1.22

Risks related to euro area household balance sheets have remained broadly stable at elevated levels

Households' distance to distress in the euro area

(Q1 2002 – Q2 2016; number of standard deviations from estimated default point)



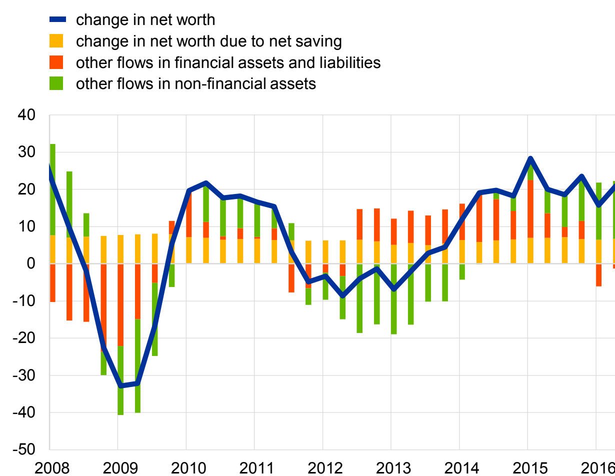
Sources: ECB, Bloomberg, Thomson Reuters Datastream and ECB calculations.
Notes: A value closer to zero for the distance to distress indicates higher credit risk. The chart shows the median and the minimum-maximum distribution across 11 euro area countries for which historical time series cover more than one business cycle. For details of the indicator, see Box 7 in *Financial Stability Review*, ECB, December 2009.

Chart 1.23

Gradually improving net worth of households helps mitigate balance sheet pressures

Change in the net worth of euro area households

(Q1 2008 – Q2 2016; four-quarter moving sum, percentage of gross disposable income)



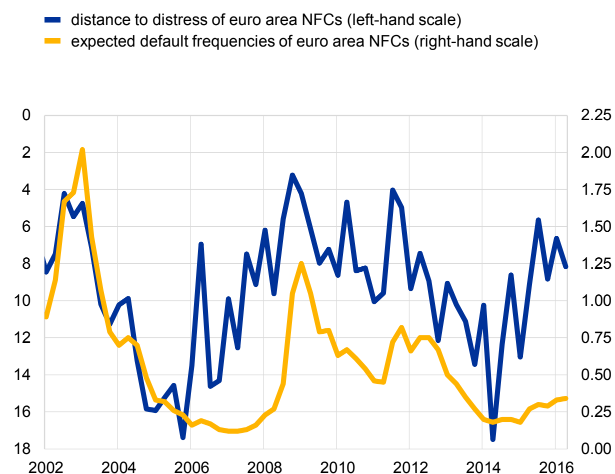
Sources: Eurostat, ECB and ECB calculations.
Notes: Other flows in non-financial assets mainly include holding gains and losses on real estate (including land). Other flows in financial assets and liabilities mainly include holding gains and losses on shares and other equity, while changes in net worth due to net saving comprise net saving, net capital transfers received and the discrepancy between the non-financial and financial accounts. Based on the European System of Accounts 2010.

Chart 1.24

Corporate balance sheet risks appear to have risen amid increased financial market volatility

Euro area NFCs' distance to distress and expected default frequency

(Q1 2002 – Q2 2016; number of standard deviations from estimated default point, percentage)



Sources: ECB, Bloomberg, Thomson Reuters Datastream, Moody's and ECB calculations.
Notes: A value closer to zero for the distance to distress indicates higher credit risk. The chart shows the median value across 11 euro area countries for which historical time series cover more than one business cycle. For details of the indicator, see Box 7 in *Financial Stability Review*, ECB, December 2009.

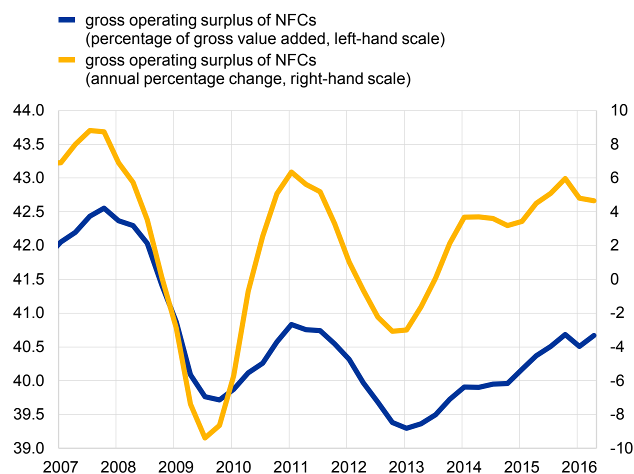
Non-financial corporate profits continue to recover, but overall profitability remains weak. Various stress and default indicators suggest that risks related to non-financial corporate balance sheets have tended to increase (see **Chart 1.24**). In particular, the distance-to-distress indicator remained close to levels seen in the global financial crisis and the euro area sovereign debt crisis, mainly owing to heightened financial market volatility throughout 2016. The earnings-generating capacity of euro area non-financial corporations (NFCs) has improved somewhat, driven by the gradual economic recovery, but corporate profitability has remained muted by historical standards (see **Chart 1.25**), inter alia reflecting the limited ability of firms to pass on rising costs to output prices in an environment of weak demand and needed competitiveness gains. However, corporate profitability is expected to improve as the recovery gathers pace, thereby also alleviating pressures on more vulnerable firms which are confronted with debt-servicing difficulties.

Chart 1.25

Corporate profits are improving, but profitability remains subdued

Gross operating surplus of euro area NFCs

(Q1 2007 – Q2 2016; percentage of gross value added, annual percentage change)



Sources: Eurostat and ECB calculations.

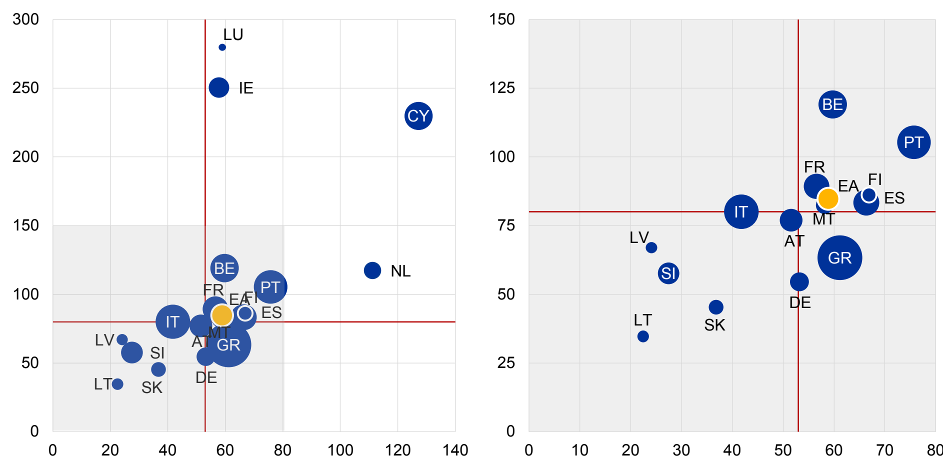
The large stock of legacy debt continues to weigh on the euro area non-financial private sector. On average, the indebtedness of euro area households fell to slightly below 59% of GDP in the first half of 2016 – a level last observed just before the start of the global financial crisis in 2008. Even if this figure is relatively low by international standards, it remains high historically. By contrast, the level of non-financial corporate debt – at 108% of GDP on an unconsolidated basis or 84% of GDP on a fully consolidated basis in the second quarter of 2016 – was higher than both international and historical norms. Balance sheet repair in the household and non-financial corporate sectors is proceeding only gradually at the aggregate euro area level, as the weak nominal growth environment and legal impediments (e.g. design of bankruptcy procedures, costs and length of contract enforcement, etc.) in several countries are hindering a more forceful deleveraging of the non-financial private sector. That said, these aggregate figures mask a considerable degree of heterogeneity at the country level (see **Chart 1.26**).

Chart 1.26

High indebtedness across sectors remains a cause for concern in some countries

Household indebtedness (x-axis) and non-financial corporate indebtedness (y-axis)

(Q2 2016; percentage of GDP)



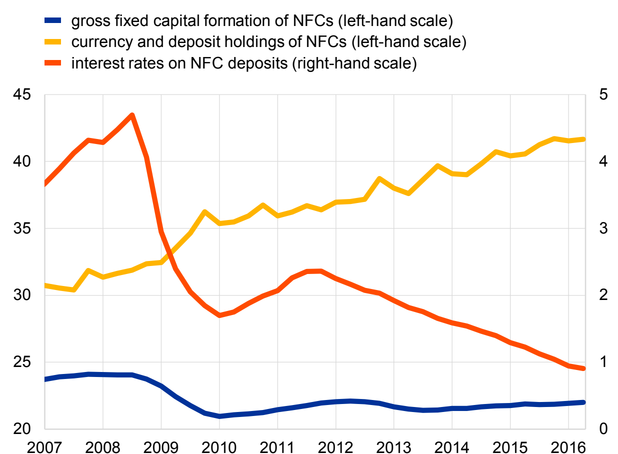
Sources: European Commission and ECB.
Notes: The size of the bubble reflects the level of general government debt as a share of GDP. Non-financial corporate debt is consolidated. Consolidated non-financial corporate debt figures include cross-border inter-company loans, which tend to account for a significant part of debt in countries where a large number of foreign entities, often multinational groups, are located (e.g. Belgium, Cyprus, Ireland, Luxembourg and the Netherlands). The horizontal and vertical lines represent the estimated macroeconomic imbalance procedure (MIP) benchmarks of 80% of GDP for consolidated non-financial corporate debt and 53% of GDP for household debt. The 133% of GDP MIP limit for fully consolidated non-financial private sector debt is split between firms and households based on their average past shares in the stock of non-financial private sector debt.

Chart 1.27

Corporate deposits are on the rise despite falling deposit rates, but corporate investment remains muted

Interest rates on corporate deposits, as well as NFCs' gross fixed capital formation and currency and deposit holdings

(Q1 2007 – Q2 2016; percentage of gross value added, percentage per annum)



Sources: Eurostat, ECB and ECB calculations.

In some euro area countries, continued high debt levels, together with adverse interest rate-growth differentials, still pose a challenge to corporate debt sustainability. This suggests further deleveraging needs in a number of countries, even if gradually improving corporate profitability coupled with record low interest payment burdens are underpinning borrowers' debt servicing capabilities. Moreover, given the uncertainty surrounding the strength of the global economic recovery, rising political uncertainty and low opportunity costs of holding liquid assets, euro area NFCs have continued to increase their cash balances, which could make a significant contribution to both reducing leverage and financing the economic recovery by supporting investment activity (see **Chart 1.27**). Looking ahead, the ongoing balance sheet repair should help offset the risks related to an eventual normalisation of interest rates and the ensuing rise in debt servicing costs. This might challenge borrowers in those countries where loans with floating rates or rates with rather short fixation periods are more widespread. A higher debt service burden for borrowers in a rising interest rate environment is also likely to be partly offset by the positive impact of a pick-up in economic dynamics on households' and firms' income and earnings situation.

While remaining muted, bank lending flows to the non-financial private sector have continued to recover in the context of falling lending rates. On average, bank lending to euro area households and NFCs has gradually strengthened further (see **Chart 1.28**), chiefly supported by the ECB's monetary policy measures, including the new series of targeted longer-term refinancing operations introduced in March 2016. The recovery in bank lending has been supported by historically low bank lending rates across the maturity spectrum in almost all lending categories, as lower bank funding costs progressively translate into reduced lending rates. Nonetheless, overall loan dynamics have remained weak, given residual deleveraging needs and high liquidity buffers of households and NFCs. The aggregate picture masks diverging trends at the country level, however. Credit to the non-financial private sector has continued to contract in countries most affected by the financial crisis, such as Cyprus, Ireland, Slovenia, Spain, Greece and Portugal, while other euro area countries, such as Luxembourg, Slovakia, Lithuania and Estonia, saw more buoyant developments. With regard to bank lending to euro area households by purpose, a rather pronounced expansion of consumer credit contrasts with a more moderate recovery in loans for house purchase and a continued contraction in other types of lending.

The recovery of bank lending is underpinned by benign demand and supply conditions. The latest euro area bank lending survey of October 2016 suggests a continued increase in loan demand across all loan categories. The low general level of interest rates remained a key factor contributing to increased demand for all types

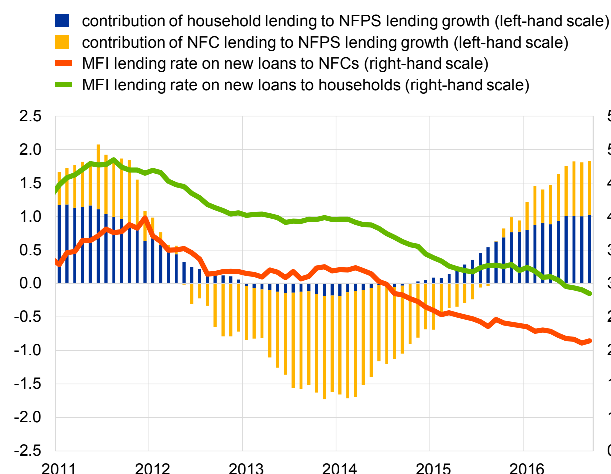
of loans. For loans to NFCs, financing needs for inventories and working capital and for fixed investment, as well as other financing needs, contributed to a continued increase in demand. As for housing and consumer loans, alongside improved consumer sentiment, stronger demand for loans was also buttressed by favourable housing market prospects and financing needs for spending on durable goods. Supply-side constraints have remained unchanged for lending to enterprises following nine consecutive quarters of easing, while credit standards have eased for both loans for house purchase and consumer credit. Competitive pressures and banks' lower risk perceptions have contributed to an easing in banks' credit standards across all lending categories. Looking at maturities, banks have eased slightly their credit standards on short-term loans to enterprises, while they have tightened them somewhat on long-term loans to enterprises. Across firm sizes, credit standards were eased marginally on loans to large firms, while they remained broadly unchanged for loans to small and medium-sized enterprises (SMEs). The latest survey on the access to finance of enterprises (SAFE) suggests that improvements in financing conditions were widespread across firm sizes, but access to finance for large enterprises still remained better than that of SMEs (see **Chart 1.29**).

Chart 1.28

Bank lending to the euro area non-financial private sector has recovered further, while lending rates continue falling

Bank lending to the euro area non-financial private sector and contributions, as well as MFI lending rates on new loans to households and NFCs

(Jan. 2011 – Sep. 2016; annual percentage point contribution, percentage per annum)



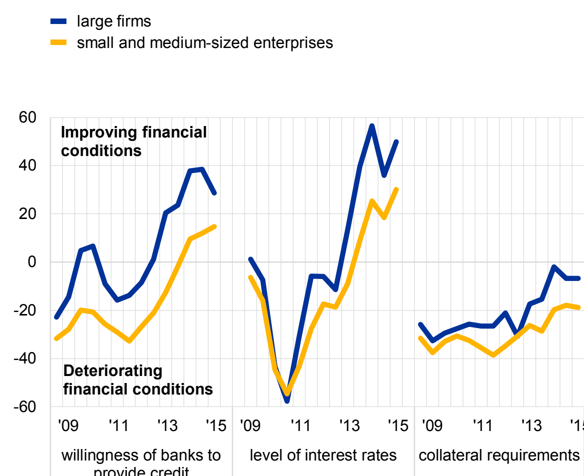
Sources: ECB and ECB calculations.
Note: NFPS stands for non-financial private sector, which comprises the non-financial corporate sector as well as the household sector (including non-profit institutions serving households).

Chart 1.29

Access to funding has continued to improve for both large as well as small and medium-sized enterprises

Financing conditions of euro area SMEs in comparison with large firms

(H1 2009 – H2 2015; net percentage of respondents, change over the past six months)



Source: ECB calculations based on the survey on access to finance of enterprises (SAFE).
Note: The levels of interest rates and collateral requirements are presented using inverted signs. Net percentages are defined as the difference between the percentage of enterprises reporting that a given factor has increased/improved and the percentage of those reporting that it has declined/deteriorated.

Euro area firms continued to benefit from favourable financing conditions also in terms of non-bank sources of financing. Euro area NFCs' external financing from non-bank sources strengthened further in the second and third quarters of 2016

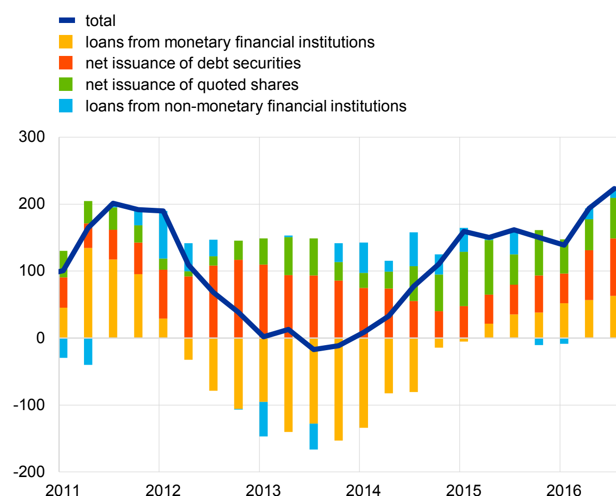
(see **Chart 1.30**). This development was largely supported by the historically low overall nominal costs of external financing against the backdrop of the ECB's latest monetary policy measures and the decline in global bond yields observed until the end of the summer. The net issuance of debt securities has increased since the start of the ECB's corporate sector purchase programme, with the cost of market-based debt touching fresh record lows (see **Chart 1.31**). That said, rising volumes were more a function of increases in the average issuance size and less a consequence of a higher number of issuers and/or deals. This pattern suggests that market-based debt financing remains accessible mostly to larger firms. The net issuance of quoted shares by NFCs continued to be modest, as the cost of equity remained fairly elevated amid bouts of volatility in euro area (and global) stock markets and in view of NFCs' still muted profitability prospects.

Chart 1.30

External financing flows for euro area non-financial corporations have picked up…

External financing of euro area NFCs

(Q1 2011 – Q3 2016; EUR billions, four-quarter moving flow)



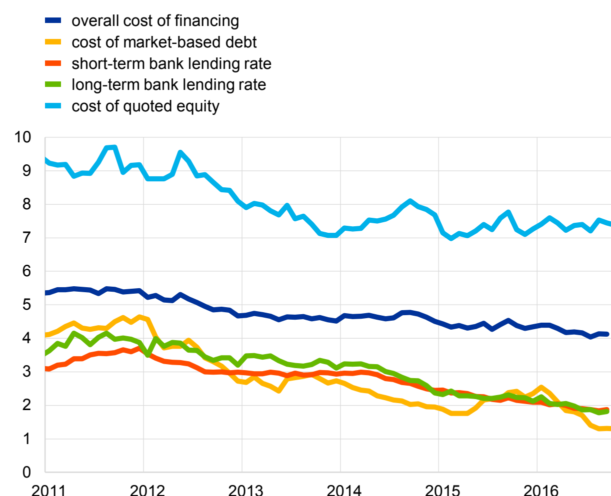
Sources: Eurostat, ECB, Dealogic and ECB calculations.
Note: Loans from monetary financial institutions to NFCs are corrected for cash pooling, loan sales and securitisations, while loans from non-monetary financial institutions exclude loan securitisations.

Chart 1.31

…while overall external funding costs of euro area non-financial corporations remained low

Nominal cost of external financing of euro area NFCs

(Jan. 2011 – Oct. 2016; percentage per annum)



Sources: ECB, Merrill Lynch, Thomson Reuters Datastream and ECB calculations.
Notes: The overall cost of financing for NFCs is calculated as a weighted average of the cost of bank lending, the cost of market-based debt and the cost of equity, based on their respective amounts outstanding derived from the euro area accounts. The cost of equity estimates are based on a three-stage dividend discount model.

Favourable financing conditions should contribute to a further recovery in bank lending, but headwinds remain. The financing conditions of euro area NFCs remain favourable and supportive of both investment and debt servicing, although the cost of debt financing has recently shown signs of a possible turnaround predominantly driven by global factors. In addition to improving supply and demand conditions, the ECB's monetary policy measures should foster the recovery of bank lending and help reduce funding costs for NFCs. However, remaining deleveraging needs, heightened political uncertainty at the national and EU levels, rising stock market volatility and a potential risk repricing in bond markets may constrain the availability and/or increase the cost of financing for NFCs in the euro area and dampen the positive effects of very accommodative ECB policies.

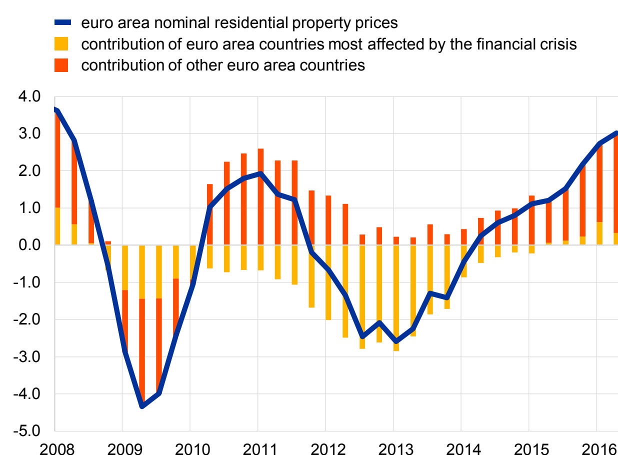
The ongoing recovery in euro area property markets has accelerated and become more broad-based across countries. Bolstered by low interest rates and the ongoing economic recovery, residential property markets gained further traction at the aggregate euro area level in the first half of 2016, expanding at the highest growth rate since early 2008 (see **Chart 1.32**). Demand factors appear to be the drivers of house price growth, while supply-side cost pressures remain muted, with overall construction input costs broadly stable since early 2013 (see **Chart 1.33**). At the same time, euro area commercial property markets have maintained a strong momentum amid improving business confidence, strong foreign demand and the ongoing search for yield.

Chart 1.32

Recovery in residential property markets is accelerating and becoming more broad-based across countries…

Decomposition of euro area residential property price growth into groups of countries

(Q1 2008 – Q2 2016; percentage change per annum, percentage point contribution)



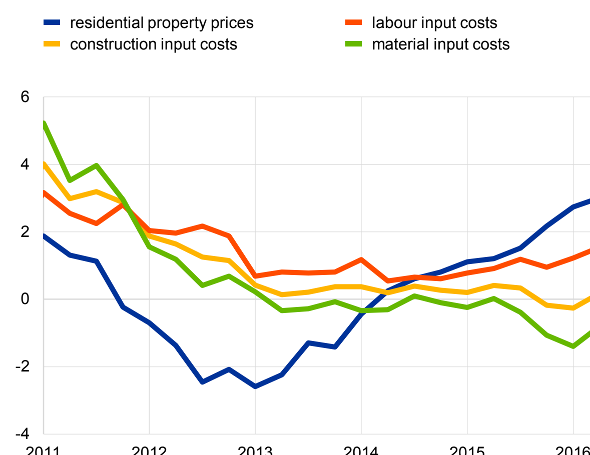
Sources: ECB calculations based on national data.
Note: The countries most affected by the financial crisis are Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.

Chart 1.33

…driven by demand factors, while upward supply-side price pressures remain contained

Construction input costs and residential property prices in the euro area

(Q1 2011 – Q2 2016; annual percentage change)



Source: Eurostat.

Residential and commercial property price dynamics appear to have become less diverse across countries, as the adverse ramifications of multi-year corrections in the context of the global financial crisis gradually dissipate at the country level. For residential property markets, this is evident from the positive contribution of euro area countries most affected by the financial crisis to overall euro area house price growth, with all countries but Cyprus, Greece and Italy recording positive property price growth rates in the first half of 2016. Cross-country variation decreased further in commercial property markets too, amid a firming recovery in those countries that saw marked corrections during the financial crisis.

Heterogeneity prevails also across regions and property types. Diminishing heterogeneity across countries is nuanced by continued divergence in regional price dynamics at the national level. Price developments in capital and/or large cities have tended to exceed price trends at the overall country level in many countries (see **Chart 1.34**) and may spread to surrounding areas and, eventually, ripple out to the rest of the country. At the same time, euro area commercial property markets saw a

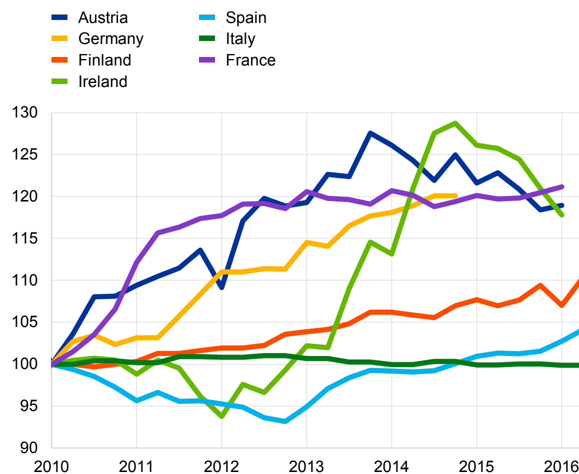
strong divergence of price developments across various property types. In particular, the prime retail segment has remained buoyant in the context of the current low-yield environment and the ongoing search for yield (see **Chart 1.35**). As a result, investment activity in euro area commercial property markets has remained robust, despite some moderation in transaction volumes in the first half of 2016 as investors took a more cautious stance with regard to their portfolio allocation choices in the context of the UK referendum. That said, the related turbulence in the UK commercial property fund sector has not spilled over to euro area commercial property markets (see Section 3.1.3). Strong demand, mainly by non-European investors (Chinese pension funds in particular), is accompanied by a continued decline in prime commercial property yields, which are below pre-crisis levels in all euro area countries but Greece. In addition, strong competition for prime assets and yield compression in core euro area commercial property markets are increasingly driving property investors towards the non-prime segment and non-core countries.

Chart 1.34

Country-level developments still mask underlying regional disparities

Residential property prices in the capital city/big cities vis-à-vis the national aggregate

(Q1 2010 – Q2 2016; index: 2010 = 100)



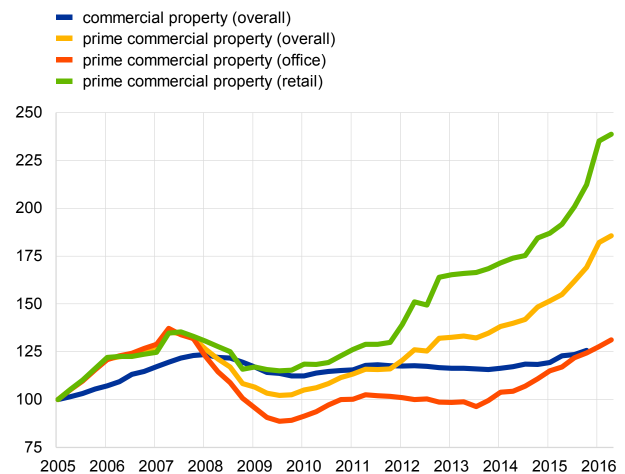
Sources: BIS, national sources and ECB calculations.

Chart 1.35

Buoyant developments in prime markets have continued, predominantly driven by the retail segment

Commercial property price indices

(Q1 2005 – Q2 2016; index: Q1 2005 = 100)



Sources: Jones Lang Lasalle and experimental ECB estimates based on MSCI and national data.
Note: Retail establishments include inter alia restaurants, shopping centres and hotels.

While euro area residential property prices are estimated to be broadly in line with fundamentals, prime commercial property prices remain well above their long-term average. Aggregate valuation estimates for the euro area (see **Chart 1.36**) mask highly heterogeneous developments at the country level. Estimated undervaluations in both the residential and commercial realms in countries that experienced large corrections in the context of the global financial crisis, such as Greece, contrast with estimated overvaluations in other countries like Austria and Belgium. Developments at the country level may also hide strong regional disparities, as indicated by the estimated overvaluation of residential property in

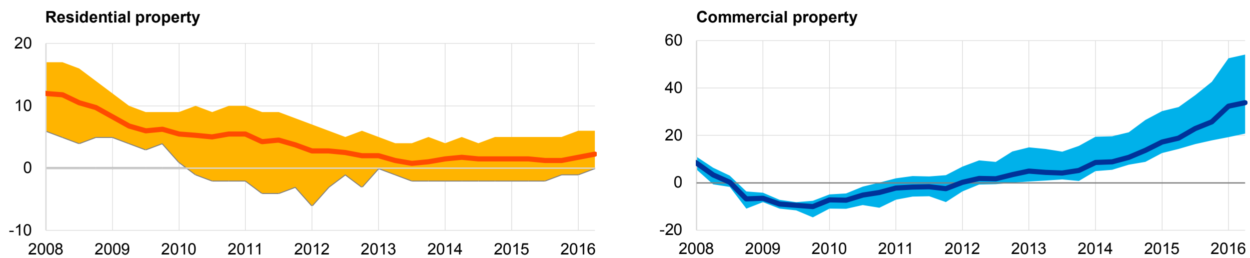
some large cities, for example in Austria and Germany.[7] That said, while offering a consistent set of benchmarks across countries, these valuation estimates are surrounded by a high degree of uncertainty, as their national relevance is conditioned by country-level specificities like fiscal treatment or structural property market characteristics (e.g. tenure status). Likewise, commercial property valuation measures need to be interpreted with caution given only limited, mainly survey-based data coverage with a focus on prime commercial property in large cities.

Chart 1.36

Residential property prices stayed broadly in line with fundamentals, while commercial property prices remained above their long-term average

Valuation estimates of residential and commercial property prices at the euro area level

(Q1 2008 – Q2 2016; percentage, average valuation, minimum-maximum range across different valuation estimates)



Sources: ECB and ECB calculations.
Notes: Valuation estimates for residential property prices are based on four different valuation methods: the price-to-rent ratio, the price-to-income ratio and two model-based methods, i.e. an asset pricing model and a new model-based estimate (BVAR). For details of the methodology, see Box 3 in *Financial Stability Review*, ECB, June 2011, as well as Box 3 in *Financial Stability Review*, ECB, November 2015. For details of the valuation estimates for prime commercial property, see Box 6 in *Financial Stability Review*, ECB, December 2011.

All in all, the recovery of euro area property markets should maintain momentum, but potential pockets of vulnerability may emerge in certain countries and asset classes. On the demand side, favourable funding conditions as well as diminishing affordability constraints owing to further strengthening labour market conditions (in terms of both income and employment prospects) are likely to underpin the ongoing recovery in euro area residential property markets. At the same time, supply-side conditions are expected to improve further, in line with the ongoing economic recovery, as indicated by rising confidence in the construction sector and the increasing number of building permits granted, which should help mitigate upward price pressures. This outlook may be vulnerable to adverse economic shocks, which may challenge the sustainability of the recovery and reverse the ongoing process of de-fragmentation across countries and market segments. In particular, deteriorating economic and financing conditions, or from a more medium-term perspective, rising interest rates, could worsen the debt servicing capacity of households and commercial property investors, and may represent a risk for banks in countries with high property-related exposures. That said, at the current juncture, early warning estimates do not indicate the build-up of underlying vulnerabilities stemming from residential property markets at the aggregate euro area level (see **Chart 1.37**). Similarly, there are also no signs of the ongoing recovery of euro area residential property markets translating into broad-based rapid housing loan growth

[7] See the February 2016 issue of the Deutsche Bundesbank's Monthly Report and Schneider, M., Wagner, K. and Waschiczek, W., "The OeNB property market monitor", October 2016.

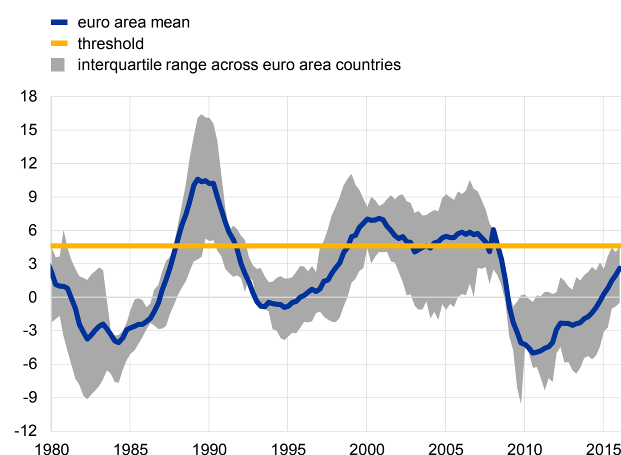
in the euro area, even if in some countries price and credit developments may warrant close monitoring in the context of the current low-yield environment (see **Chart 1.38**).

Chart 1.37

Early warning estimates currently do not indicate the build-up of systemic risk at the aggregate euro area level…

Mean and interquartile range of euro area real residential property prices and indicative signalling threshold

(Q1 1980 – Q1 2016; three-year growth rate of real residential property prices (annualised), percentage)



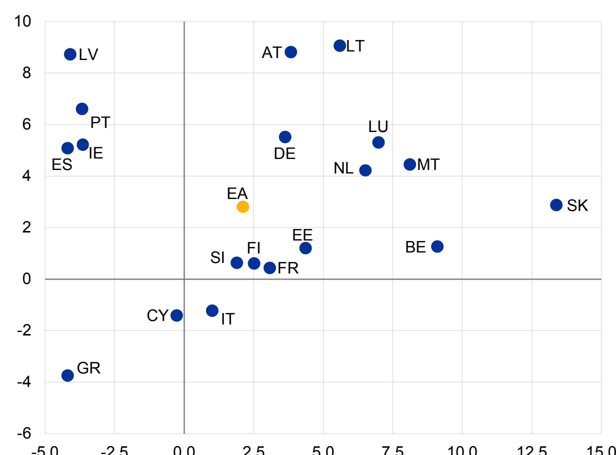
Sources: OECD and ECB calculations.
Notes: The shaded area represents the interquartile range across euro area countries. The signalling thresholds of 0.4, 0.5 and 0.6 are obtained by minimising the loss function of a policymaker with a preference for not missing financial crises rather than issuing false alarms. The threshold value was chosen based on the early warning properties of the indicator. The threshold corresponds to the lowest early warning threshold that results in a conditional pre-crisis probability of 17.5% for the data sample at hand, upon a warning signal being issued. The unconditional pre-crisis probability in the sample at hand is around 9%. Pre-crisis periods are defined as 12-5 quarters prior to systemic banking crises.

Chart 1.38

…but credit and property price developments may warrant close monitoring in some countries

Growth in loans for house purchase (x-axis) and residential property price growth (y-axis) across the euro area

(H1 2016 vs. H1 2015; annual percentage change)



Sources: ECB and ECB calculations.
Notes: Bank lending data are not adjusted for loan sales and securitisations. Securitisation may, however, play an important role in some countries, for example Belgium, where adjusted time series would yield lower growth rates for housing loans. The figures for Cyprus and Lithuania reflect the annual change in Q1 2016, given the lack of Q2 data.

The new macroprudential toolkit equips authorities to mitigate possible risks to financial stability at the country level in a targeted and granular way. In fact, based on a broader set of measures which go beyond prices and valuations, some countries appear to be increasingly exposed to property-related risks. In some countries such as Austria, Belgium and Luxembourg, where a range of residential real estate indicators are growing, there is the risk that expectations of continued price increases feed into demand and lending policies, with credit standards being relaxed. In other countries, like Finland and the Netherlands, prevailing real estate-related imbalances associated in particular with elevated household indebtedness and large bank exposures to real estate-related loans may amplify adverse shocks and lead to negative interactions between the macroeconomic environment and the housing market. As a result, a number of countries have already introduced macroprudential measures to avoid a potential build-up of vulnerabilities, in particular in residential property markets. Given its macroprudential mandate, the ECB is monitoring property market developments closely too and, in accordance with the SSM Regulation, may top up national measures which are based on Union law if needed (see **Box 2**).

Box 2
Monitoring euro area residential real estate markets from a macroprudential perspective

No other macroeconomic segment has been more closely linked to financial stability than residential real estate. Historical evidence shows that financial crises involving housing market imbalances have had severe negative repercussions on the overall financial system and economic growth. Accordingly, policies to contain risks stemming from residential property markets have assumed a key role in the macroprudential toolkit. Judiciously informing their use is, however, challenging given the multitude of factors behind real estate developments. This calls for an encompassing view that goes beyond traditional standardised price and valuation metrics.

As part of its new responsibilities in the area of macroprudential policy, the ECB has stepped up efforts to monitor country-specific developments in residential real estate markets. In line with the Single Supervisory Mechanism (SSM) Regulation, which gives the ECB the power to top up national competent/designated authorities' decisions regarding the activation of certain measures,[8] when carrying out its macroprudential policy work, the ECB has adopted an internal residential real estate risk assessment framework in order to detect early signs of vulnerabilities in individual SSM countries for financial stability and related policy purposes. The objective of the framework is preventative (rather than corrective), given the policy mandate, and consists of two main elements. First, the analysis incorporates a countercyclical perspective, with the main aim of preventing the build-up of risks. Second, it focuses on making the system more resilient to potential shocks from a forward-looking perspective.[9] This framework also feeds into broader EU initiatives, most notably as part of the analytical support for the European Systemic Risk Board (ESRB), and is complementary to the assessment of the real estate market performed by the ECB when carrying out its banking supervision work, with different objectives, such as supporting banks in their real estate-related analysis.

The core of the ECB's risk identification within the macroprudential framework rests on a comprehensive set of indicators at the level of individual SSM countries. The underlying pool of variables covers numerous financial and economic indicators, reflecting both cyclical and structural conditions in the housing market of each country. Indicators are chosen on the basis of the evidence gained from past episodes of financial instability caused by real estate imbalances. A first set of indicators includes those regularly disseminated in the FSR which target residential real estate prices and valuations as strong price increases and underlying price misalignments tend to precede periods of financial instability and economic recessions.[10] As valuation metrics are surrounded by a high degree of uncertainty, the ECB also uses various model-based approaches[11], while it also assesses the impact of changes in fundamental variables affecting valuations (e.g. interest rates). A second set of indicators covers lending conditions and household balance sheet soundness. Strong mortgage lending growth could lead to higher indebtedness and could be a symptom of relaxing credit standards, thereby increasing the fragility of the overall system. At the

8 Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions. The macroprudential tools available to the ECB are laid down in the Capital Requirements Regulation and Directive (CRR/CRD IV).

9 Real estate risks that have already materialised fall outside the scope of such a preventative toolkit and require a broader policy response (e.g. the legacy stock of non-performing residential real estate loans).

10 For more details, see Box 3 in *Financial Stability Review*, ECB, May 2015.

11 For more details, see Box 3 in *Financial Stability Review*, ECB, November 2015.

same time, weak household balance sheets, stemming from high levels of indebtedness, low household wealth and high debt service ratios, make the unwinding of residential real estate imbalances more likely and more severe.

These indicators are assessed against historically generated early warning thresholds and transformed into risk ratings on the basis of them. The thresholds are identified by looking at the distribution of the indicators or by following experts' views or they are estimated on the basis of historical data in the spirit of the early warning model literature.

Indicators are also aggregated into composite measures that capture the overall level of residential real estate vulnerabilities in one country. This step facilitates the identification of vulnerable markets that require deeper analyses to reach a final risk assessment. To this end, consideration is given to other qualitative information on residential real estate markets and country-specific mitigating factors.

Vulnerabilities are also cross-checked against the exposure of banks to the real estate sector, as a share of total assets, GDP and capital. The assessment takes into account the exposures to overall real estate, including all types of collateralised lending and credit to industrial activities in relation to real estate. This allows an assessment of risks stemming from potential spillovers and co-movements between residential and commercial real estate. The exposures and the associated collateral are analysed in detail and monitored by ECB Banking Supervision. Other aspects that need to be closely monitored are lending conditions, including, where available, loan-to-value ratios, debt-to-income ratios and debt service-to-income ratios of new loans.

Beyond the above analytical elements, the ECB also pays attention to a broad array of structural indicators that can amplify or attenuate shocks. These include, for example, the share of floating interest rate mortgages, home ownership rates, the fraction of homeowners with mortgages, the share of households with "underwater" mortgages[12], the role of the construction sector in the overall economy, taxation regimes and country specificities. Finally, the ECB also conducts internal bank stress tests to evaluate the resilience of the banking system under an adverse scenario, defined specifically for the risk assessment of a downturn in housing markets with potential negative ramifications for the rest of the economy.

Taken together, all of the elements of the ECB's risk identification framework give a detailed picture, providing a foundation for consistently assessing vulnerabilities in residential real estate markets across euro area countries. However, country specificities which are not (or insufficiently) captured by this framework need to be taken into account and justify a role for cross-checking rule-based indications with expert judgement. With time, the depth of the analysis is expected to benefit from improving data quality and availability (including harmonised indicator definitions), strengthening the granularity and the homogeneity of the assessment of risks across countries and market segments.

---

[12] An "underwater" mortgage is defined as a situation where the value of the mortgage loan exceeds the market value of the home.