1 Macro-financial and credit environment

Macro-financial conditions are improving gradually in the euro area as the economic recovery is firming and broadening alongside continued favourable financing conditions. At the same time, regional growth dynamics have become more synchronised across the globe, with both advanced and emerging economies supporting the recovery in global growth. That said, political and policy uncertainties surrounding the UK-EU negotiations, the electoral cycle in the euro area and the policy agenda of the new US administration, together with elevated geopolitical tensions, harbour the potential to unearth underlying vulnerabilities. This, in turn, may reignite risk aversion vis-à-vis certain countries, markets and asset classes and trigger a confidence shock, thereby weighing on the underlying global and euro area growth momentum.

Stress in sovereign bond markets edged up around the turn of the year against a background of rising political uncertainty at the national and EU levels as well as higher long-term interest rates. Following the election in France, however, sovereign stress abated somewhat. Improving cyclical conditions coupled with continued relatively favourable financing conditions, while overall a welcome development, mask underlying vulnerabilities in some euro area sovereigns. Above all, sovereign debt sustainability risks in some countries may be compounded by a slowdown in fiscal adjustment and structural reform efforts amid potential renewed political uncertainty and a further increase in long-term interest rates.

Mirroring overall economic conditions, the euro area non-financial private sector continued to recover, but legacy balance sheet concerns still weigh on the underlying momentum. The ongoing economic recovery should underpin improving income and earnings prospects for euro area households and non-financial corporations. This, coupled with favourable financing conditions, should help mitigate the risks for those euro area countries with elevated levels of non-financial private sector debt. However, a global risk repricing and a more pronounced rise in long-term interest rates have the potential to reignite debt sustainability concerns going forward.

The upturn of euro area residential and commercial property markets has continued, while becoming more broad-based across countries. Overall, euro area residential property price valuations appear to be broadly in line with fundamentals, but prime commercial property valuations have deviated further away from long-term averages. Favourable financing conditions and gradually improving economic prospects are underpinning the recovery in property markets, with positive impacts on the real economy, but buoyant developments in some countries and asset classes need to be carefully monitored in the current low-yield environment.

1.1 Firming and broadening euro area economic recovery amid diminishing downside risks

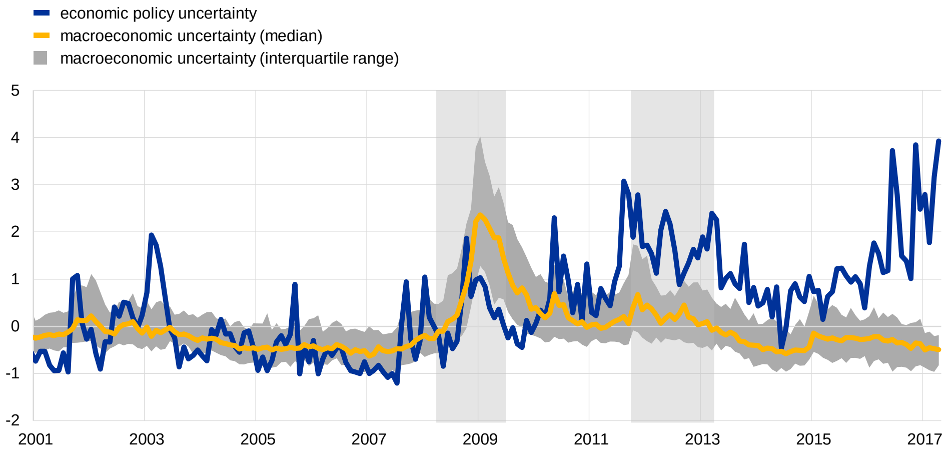
The euro area economic recovery continues to firm up. Domestic demand remained the mainstay of economic growth, supported by the ECB's very accommodative monetary policy stance, which continues to be passed through to the real economy. The recovery in investment is being promoted by favourable financing conditions and improvements in corporate profitability, while sustained employment gains provide support to households' real disposable income and thus private consumption. At the same time, euro area export growth has continued to pick up on the back of a gradual improvement in global trade. While a standard metric of economic policy uncertainty increased against the background of a combination of critical national (electoral cycle), supranational (challenges to EU governance in light of the Brexit process) and global (e.g. new US administration) developments, financial and economic uncertainty, as measured by a composite index, has remained contained (see **Chart 1.1**). Low macroeconomic uncertainty partly reflects continued improvements in economic sentiment and confidence, suggesting resilient growth in the first half of 2017. Despite the firming recovery, the euro area economy is still lagging in terms of the ground covered since the onset of the global financial crisis, compared with more buoyant developments in other major advanced economies, notably the United States (see **Chart 1.2**).

Chart 1.1

Macroeconomic uncertainty remains low despite elevated political uncertainty

Composite index of macroeconomic uncertainty and economic policy uncertainty in the euro area

(Jan. 2001 – Apr. 2017; standard deviations from mean)



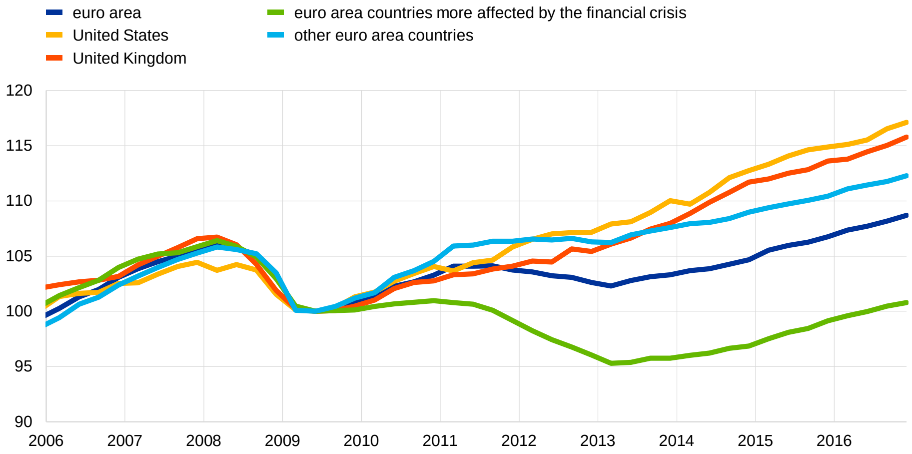
Sources: Baker, Bloom and Davis, Consensus Economics, Eurostat, European Commission, ECB and ECB calculations.
Notes: Median of and interquartile range across different measures of financial and economic uncertainty. Macroeconomic uncertainty is captured by examining a number of measures of uncertainty compiled from various sources, including: (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. The composite index of macroeconomic uncertainty in the euro area is standardised to mean zero and unit standard deviation over the full horizon. For further details, see "The impact of uncertainty on activity in the euro area", *Economic Bulletin,* Issue 8, ECB, 2016. Areas in grey reflect euro area recessions as identified by the Centre for Economic Policy Research (CEPR).

Chart 1.2

The euro area economic recovery continues to lag that seen in international peers since the financial crisis

GDP levels in the euro area, the United States and the United Kingdom

(Q1 2006 – Q4 2016; index: Q2 2009 = 100)



Sources: Eurostat and ECB calculations.
Note: Euro area countries more affected by the financial crisis include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.

Euro area economic growth is becoming more broad-based. The dispersion of growth across sectors and countries has declined significantly since the respective peaks in 2009, following the slumps in global trade and the housing market, and 2011, in the context of the euro area sovereign debt crisis (see **Chart 1.3**). In fact, the combined dispersion of value-added growth across sectors and countries has reached levels not seen since the start of EMU and suggests that growth has become much more broad-based. The more synchronised growth in the current episode stands in sharp contrast to the short-lived recovery in 2009-10, when growth remained relatively uneven across sectors and countries, and bodes well for economic growth going forward, as expansions tend to be stronger and more resilient when growth is broader. In line with economic activity, euro area labour markets continued to show broad-based improvements. Euro area employment has been rising since mid-2013 and is now almost back to its pre-crisis level. At the same time, the aggregate euro area unemployment rate has dropped to levels last seen in early 2009, but cross-country heterogeneity remains high, with the rate ranging from 3.9% in Germany to 23.2% in Greece.

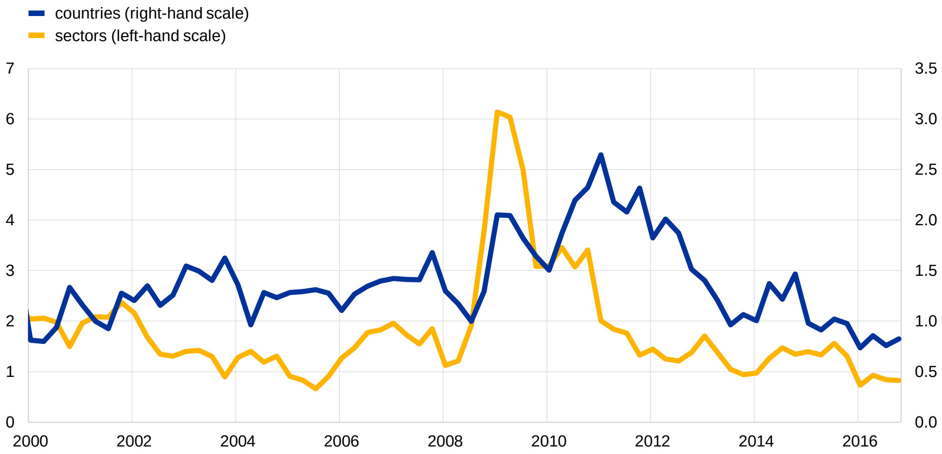
The euro area economic recovery is expected to proceed at a steady pace. A gradually firming global recovery and resilient domestic demand, supported by the very accommodative monetary policy stance, past progress made in deleveraging across sectors, a continued improvement in labour market conditions as well as more favourable economic sentiment, are projected to sustain the underlying growth momentum in the euro area. At the same time, a sluggish pace of structural reform implementation, further balance sheet adjustment needs in some countries and sectors as well as the adverse impact of higher oil prices are weighing on the euro area economic recovery. All in all, the March 2017 ECB staff macroeconomic projections for the euro area envisage real GDP growth of 1.8% for 2017, followed by an expansion of 1.7% in 2018 and 1.6% in 2019, i.e. above the estimated potential output growth of slightly more than 1% over the projection horizon.

Chart 1.3

Growth across countries and economic activities has become more synchronised

Dispersion of value-added growth across euro area countries and economic activities

(Q1 2000 – Q4 2016; percentage points)



Sources: Eurostat and ECB calculations.
Notes: The dispersion of growth across countries is measured as the weighted standard deviation of year-on-year growth in value added in the euro area (excluding Ireland and Malta). The dispersion of growth across NACE activities is measured as the weighted standard deviation of year-on-year growth in euro area value added in the main NACE economic activities (excluding agriculture).

Downside risks to the euro area growth outlook appear to have become less pronounced and continue to mainly relate to global factors. Key external downside risks emanate inter alia from an increase in trade protectionism, a disorderly tightening of global financial conditions, which could affect in particular vulnerable emerging market economies, as well as further rising (geo)political uncertainties across the globe. In particular, the negotiations on the future relations between the United Kingdom and the European Union remain subject to considerable uncertainty not only in terms of duration and outcome, but also of their long-term economic impact (see **Box 1**). Additional risks originating from within the euro area relate to potential renewed political and policy uncertainties as well as the re-emergence of sovereign stress at the euro area country level.

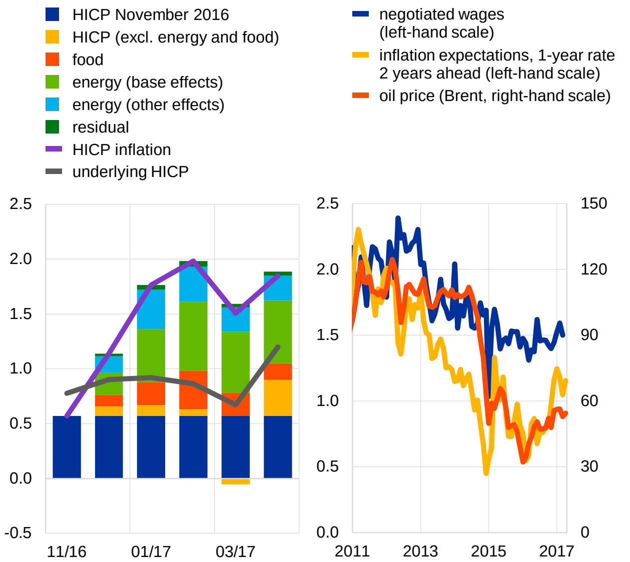
Nominal growth prospects have also improved in the euro area. Euro area headline inflation picked up at the turn of 2016-17, driven predominantly by a strong increase in annual energy and unprocessed food price inflation (see **Chart 1.4**), and is likely to remain at levels close to 2% in the coming months. Measures of underlying inflation, however, have remained low and are expected to rise only gradually over the medium term. That said, the recent rise in inflation reduces the risk of negative second-round effects on wage and price-setting in the near term. According to the March 2017 ECB staff macroeconomic projections for the euro area, given upward base effects in energy price inflation, HICP inflation is expected to increase strongly to 1.7% in 2017, up from 0.2% in 2016, and to remain broadly stable at 1.6% in 2018 and 1.7% in 2019. These expected outcomes reflect opposing patterns in energy and non-energy inflation as declining positive contributions from the energy component contrast with a gradual increase in underlying inflation.

Chart 1.4

The pick-up in headline inflation was mainly driven by energy prices, while wage pressures remain contained

Developments in the HICP and its components, market-based inflation expectations, negotiated wages and the oil price

(left panel: Nov. 2016 – Apr. 2017; percentages and percentage points; right panel: Jan. 2011 – Apr. 2017; percentages, annual percentage changes, USD per barrel)



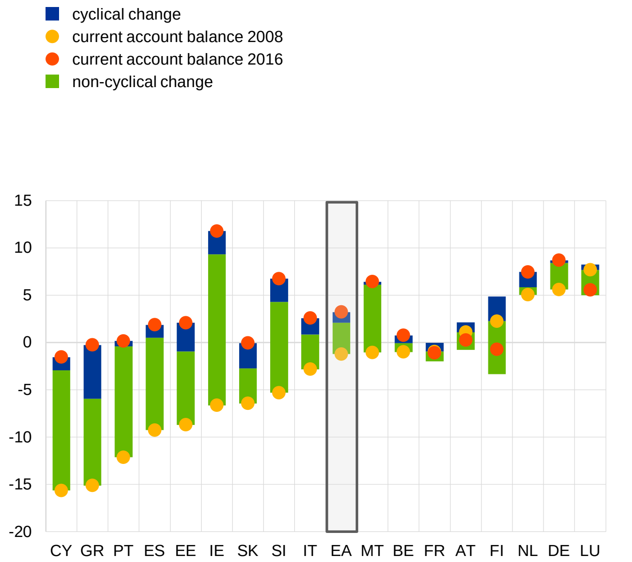
Sources: Bloomberg, Eurostat, ECB and ECB calculations.
Note: Energy inflation excluding base effects partly reflects the oil price increases in recent months.

Chart 1.5

Considerable external rebalancing, with large parts of the underlying adjustment being non-cyclical in nature

Decomposition of the change in the current account balance between 2008 and 2016 in selected euro area countries

(2008-16; percentages of GDP and percentage points of GDP)



Sources: ECB and ECB calculations.
Notes: The estimates of cyclical and non-cyclical changes are based on a current account model in the vein of the IMF's External Balance Assessment. For further details, see "External Balance Assessment Methodology: Technical Background", Research Department, IMF, June 2013. Non-cyclical factors capture policies, such as rules governing product and labour markets, and fundamentals, such as demographics.

External rebalancing in euro area countries more affected by the crisis has continued. Major current account corrections since 2008 in particular in countries more affected by the financial crisis (e.g. Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain) – coupled with a further strengthening of current account positions in some countries with sizeable pre-crisis surpluses (e.g. Germany) – have led to a widening of the current account surplus of the euro area to some 3.2% of GDP in 2016. A large part of the underlying current account adjustment in these countries has been of a non-cyclical nature (see **Chart 1.5**), reflecting inter alia competitiveness gains and adjustments in potential output, which underpin the sustainability of the adjustment made so far. Despite significant current account improvements since 2008, the net foreign liabilities of most countries which were more affected by the financial crisis remain high. 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 in order to enhance the euro area's medium-term growth potential.

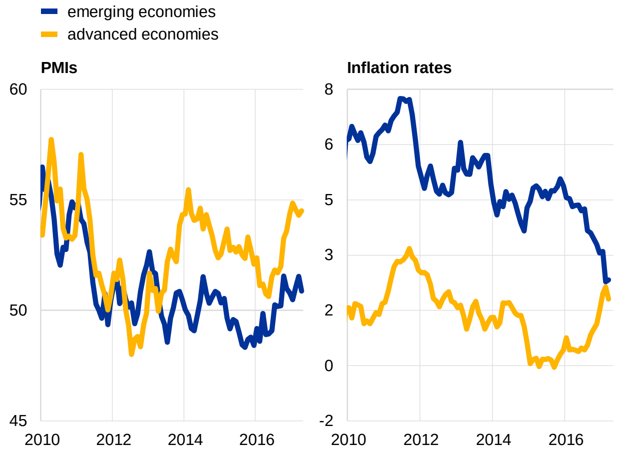
The external environment that conditions developments in the euro area is supportive, with the global recovery expected to gather momentum gradually. Underlying regional growth dynamics have become more synchronised since early 2016, with both advanced and emerging economies supporting the recovery in global activity amid a narrowing inflation gap (see **Chart 1.6**). Leaving behind the trough in activity at the turn of 2015-16, global growth is set to gain further traction, but the pace of expansion will remain below pre-crisis rates. The risks to the outlook are tilted to the downside and relate inter alia to an increase in trade protectionism, a disorderly tightening of global financial conditions affecting in particular vulnerable emerging economies, continued uncertainties surrounding China's transition from an investment-led to a more consumption-driven growth path and possible disruptions caused by heightened (geo)political uncertainties around the globe.

Chart 1.6

Global growth became more synchronised in advanced and emerging economies amid falling inflation gaps

Manufacturing Purchasing Managers' Indices (PMIs) and inflation rates across advanced and emerging economies

(Jan. 2010 – Apr. 2017; diffusion indices: 50+ = expansion; annual percentage changes)



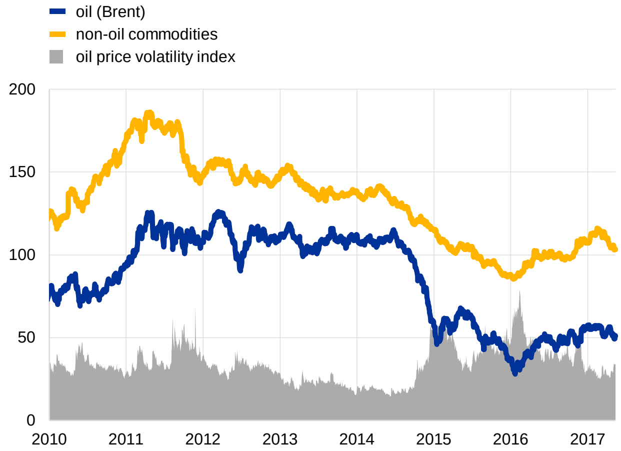
Sources: Markit, Institute for Supply Management, OECD and ECB calculations.
Note: The emerging market aggregate comprises Brazil, China, India, Russia and Turkey, while the advanced economy aggregate includes the euro area, Japan, the United States and the United Kingdom.

Chart 1.7

Oil prices have stabilised following a pick-up towards the end of 2016

Oil and non-oil commodity price developments and the oil price volatility index

(1 Jan. 2010 – 12 May 2017; non-oil commodities index: 2015 = 100; USD per barrel)



Sources: Bloomberg, Haver Analytics and ECB calculations.

Global oil prices continue to fluctuate. They have moved in a range of USD 48-55 since the OPEC announcement of a production freeze in late November 2016. Lately, prices have weakened somewhat owing to higher US production and renewed fears that OPEC is not sufficiently curtailing oil supply to rebalance the market (see **Chart 1.7**). That said, the increase in oil and other commodity prices over the past year has helped to attenuate the financial stability concerns surrounding the oil industry and to ease the most severe macro-fiscal pressures on oil-exporting emerging economies. Uncertainties regarding the recovery in commodity exporters remain given relatively low commodity prices. Risks to oil prices are judged to be rather balanced given, on the one hand, persisting geopolitical risks and, on the other hand, the concrete possibility of a larger-than-predicted expansion in US shale production.

The cyclical recovery in advanced economies is proceeding amid continued policy support. Advanced economies outside the euro area have rebounded from the soft patch at the start of last year, as economic growth has continued to be supported by favourable financial and improving labour market conditions as well as strengthened sentiment and confidence. At the same time, monetary policies have remained accommodative, but divergence across advanced economies is increasing, reflecting underlying multi-speed economic dynamics. In fact, the withdrawal of monetary support in the United States (and further prospects thereof) contrasts with very accommodative policies in Japan and the United Kingdom. The outlook for advanced economies entails a modest expansion, underpinned by fiscal stimuli (in particular in the United States) and continued monetary accommodation, as the cyclical recovery continues and output gaps gradually close.

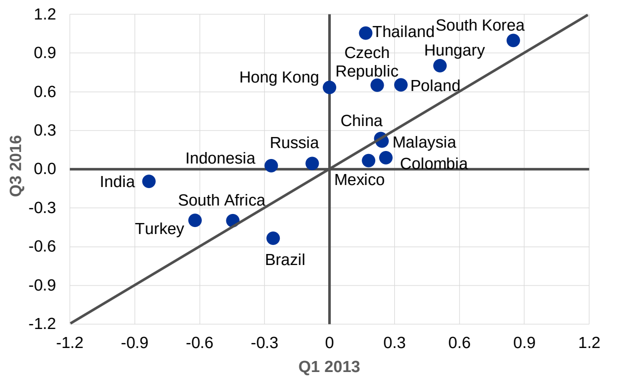
Risks to the growth outlook in advanced economies remain on the downside. Overall, political and policy uncertainties stemming from advanced economies remain elevated, not only as regards the medium-term growth prospects of the UK economy following the withdrawal from the EU (contingent on the outcome of the UK-EU negotiations), but also concerning the design and enactment of the new US administration's policies, their effects on the US economy and any potential spillovers to global activity. At the same time, protectionist positions are gaining prominence across advanced economies, following growing political discontent, and have the potential to negatively impact global trade and growth. Moreover, ensuring the long-term sustainability of public finances also remains a challenge for some countries (e.g. the United States, 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).

Chart 1.8

Vulnerabilities have declined in many emerging economies since the "taper tantrum"

Emerging market vulnerability index before the taper tantrum (Q1 2013; x-axis) and the US election (Q3 2016; y-axis)

(Q1 2013 vs. Q3 2016; vulnerability index; +/- = low/high vulnerability)



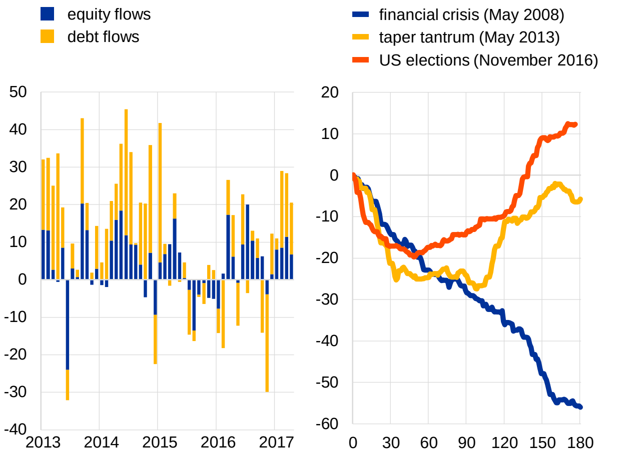
Sources: Haver Analytics and ECB calculations.
Notes: Observations above (below) the 45 degree line reflect improving (deteriorating) fundamentals. The index is an average of six standardised indicators (i.e. inflation, the budget balance, the current account balance, nominal credit growth, the real monetary policy rate and a measure of foreign reserve adequacy) of macroeconomic fragility selected from a larger set of variables based on the degree of correlation with changes in the nominal effective exchange rates of 15 major emerging market currencies during the taper tantrum period (May-September 2013). The higher the index, the lower the level of vulnerability.

Chart 1.9

Emerging market portfolio flows less affected compared with previous episodes of emerging market stress

Portfolio flows to emerging economies by asset class (left panel) and cumulative daily flows (right panel)

(left panel: Jan. 2013 – Apr. 2017; USD billions; right panel: number of days after specified event, USD billions)



Sources: Institute of International Finance and ECB calculations.
Note: Cumulative flows are based on eight emerging economies that publish daily information on portfolio liabilities, comprising Brazil, India, Indonesia, the Philippines, South Africa, South Korea, Thailand and Turkey.

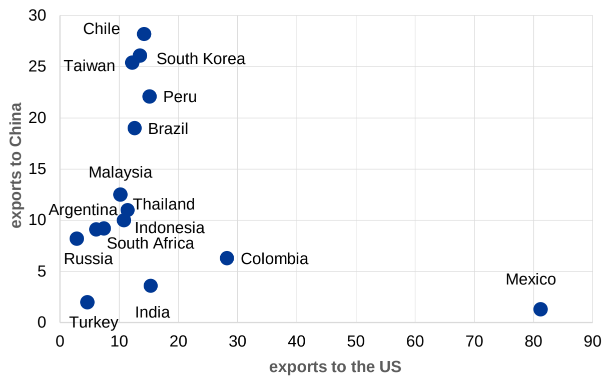
Fundamentals in emerging economies have improved, but challenges remain. Resilient growth in major emerging economies (e.g. China, India) coupled with the gradual easing of deep recessions in some of the larger commodity exporters (e.g. Brazil, Russia) bode well for a continued recovery in emerging markets. Still, the underlying economic momentum remains weak by historical standards given the ongoing rebalancing of the Chinese economy and the adjustment of commodity exporters to low oil prices. All in all, economic fundamentals have improved over the past years across the emerging market universe (see **Chart 1.8**), suggesting higher resilience to adverse shocks. That said, some emerging economies faced considerable capital outflows in the aftermath of the US election, which were roughly similar in magnitude to the outflows observed during the "taper tantrum" episode and predominantly affected emerging bond markets. However, capital outflows from emerging markets appear to have been less persistent with more muted price effects (see Section 2) than in previous episodes of uncertainty (see **Chart 1.9**), possibly as a result of improved fundamentals, but also the different nature of the underlying economic shock in the two episodes.

Chart 1.10

Protectionism may affect emerging economies with strong trade linkages to the United States and China

Merchandise exports to the United States and China

(2016; percentages of total merchandise exports)



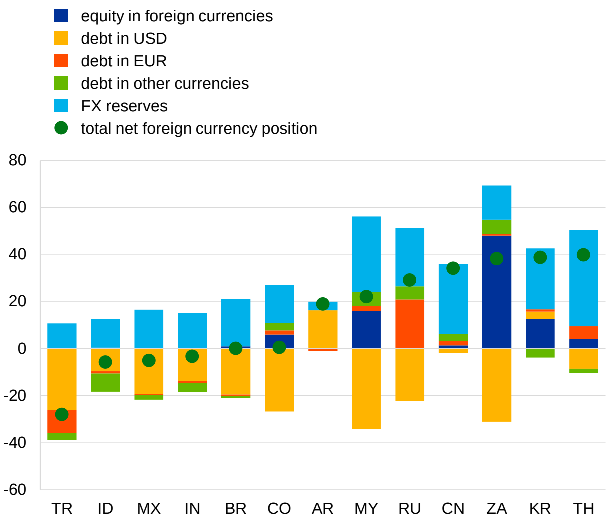
Sources: Haver Analytics and ECB calculations.

Chart 1.11

Unhedged US dollar liabilities may add to vulnerabilities in a number of emerging economies

Currency composition of net foreign liabilities

(2016; percentages of GDP)



Sources: Benetrix, A., Shambaugh, P. and Lane, J., "International Currency Exposures, Valuation Effects and the Global Financial Crisis", *Journal of International Economics,* Vol. 96, 2015, and ECB calculations.
Notes: TR: Turkey; ID: Indonesia; MX: Mexico; IN: India; BR: Brazil; CO: Colombia; AR: Argentina; MY: Malaysia; RU: Russia; CN: China; ZA: South Africa; KR: South Korea; TH: Thailand. Data for Argentina, Malaysia and China are for 2015.

The economic recovery in emerging markets faces strong headwinds. A faster-than-expected rebalancing of the Chinese economy, while implying direct knock-on effects for emerging economies with close trade and financial links with China, could also affect global trade and financial markets via indirect confidence effects. Moreover, a more protectionist approach taken by the new US administration vis-à-vis certain emerging economies (e.g. China, Mexico) could hurt growth prospects in those countries and spill over to emerging markets more broadly (see **Chart 1.10**). In commodity-exporting countries, the need to adjust to terms-of-trade shocks and to restore macro-fiscal stability will weigh on economic recovery. Tighter financial conditions and a shift towards higher interest rates against the backdrop of the withdrawal of monetary accommodation in the United States could weigh on growth in countries with unresolved domestic and external imbalances. Some countries and sectors with notable unhedged exposures to foreign currency-denominated debt may be vulnerable to further marked downward exchange rate pressures vis-à-vis the US dollar (see **Chart 1.11**). Lastly, past credit excesses and the related debt accumulation may expose some emerging economies (mainly those in the late phase of the credit cycle) to the risk of sudden capital flow reversals. This could unearth broader emerging market concerns and adversely affect global confidence.

All in all, the materialisation of downside risks to economic growth could pose a challenge to financial stability. While the economic expansion at both the euro area and global levels is ongoing, headwinds to economic recovery remain amid uncertainties regarding the outcome of UK-EU negotiations and the policies of the new US administration, diverging monetary policies across major advanced economies, a structural rebalancing towards a more moderate growth path in emerging economies as well as heightened (geo)political tensions around the world. These factors may not only undermine the sustainability of the recovery in the euro area and globally, but also have the potential to affect confidence, trigger renewed tensions in global financial and commodity markets and prompt a disorderly unwinding of global search-for-yield flows. At the same time, a weaker-than-expected growth environment could itself trigger the materialisation of any of the main risks to euro area financial stability (see Overview) and reinforce global risk repricing, fuel debt sustainability concerns or further challenge bank profitability.

Box 1
Preparing for Brexit to secure the smooth provision of financial services to the euro area economy

The decision of the United Kingdom to withdraw from the European Union (EU) contributes to prevailing political uncertainties, but should not have significant financial stability implications, especially if adequate preparations are made. On 29 March 2017 the United Kingdom notified the European Council, in accordance with Article 50(2) of the Treaty on European Union, of the United Kingdom’s intention to withdraw from the EU. While it adds to the prevailing political uncertainty, the Brexit process itself is currently not one of the main concerns for euro area financial stability. At the same time, depending on the nature of the agreement on withdrawal, the new relationship and any possible transitional arrangements, Brexit will affect how financial services are provided to euro area customers.[6]

The United Kingdom runs a significant trade surplus in financial services vis-à-vis the rest of the EU. In particular, the City of London is a key global hub for wholesale financial services, such

6 This box focuses on a “hard Brexit” scenario in which there is no agreement on the future EU27-UK relationship at the end of the two-year period following the triggering of Article 50(2). As a consequence, UK-domiciled institutions would lose their passporting rights to the Single Market and would not receive any preferential treatment compared with institutions in other third countries.

as trading and clearing of derivatives, foreign exchange transactions, repurchase agreements (repos), securities issuance and financial advisory services. With regard to financial services provided to the euro area economy (e.g. to firms and households), the role of the United Kingdom varies across activity types:

(i) **Direct provision of credit by UK-domiciled banks to the euro area non-financial private sector represents only 1-2% of the sector's total external financing.** Loans by UK-domiciled banks to the euro area non-financial corporate and household sectors, totalling €67 billion and €150 billion, respectively, as at the end of 2016, represent only 1% and 2%, respectively, of the overall loan financing of the two sectors.[7] UK banks' holdings of euro area non-financial corporate debt are also relatively small at €26 billion.

(ii) **Around 10% of all syndicated loans granted to euro area non-financial corporations involve UK banks.**[8] In addition, another 30-40% involve banks from the United States, Japan or Switzerland. Among the latter, it is not possible to precisely identify the degree to which those banks are operating out of London, but often their European syndicated loan units are based in London.[9] While being part of a loan syndicate catering to a euro area company does not necessarily require EU passporting rights, the lead banks are often expected to provide ancillary services (e.g. treasury management, corporate finance, advisory and underwriting services)[10] that do require a passport. While the majority of lead banks in deals catering to euro area companies are from the euro area, in recent years around 20-25% of lead banks have come from the United States or the United Kingdom or, to a somewhat lesser extent, Japan or Switzerland.

(iii) **Owing to the size and depth of UK capital markets, some euro area firms issue securities on UK securities exchanges**. The share of total debt and equity issued by euro area firms listed on UK exchanges has ranged between 5% and 15% over the last decade (based on Dealogic data).[11]

(iv) **Some advisory services related to securities underwriting are currently provided from London.** Regarding underwriting of debt securities issued by euro area firms, in 2016 UK-domiciled banks or subsidiaries acting as bookrunner accounted for around 40% of the top 40 bookrunners (based on Dealogic data). For euro area firms' IPOs and secondary public offerings, the share of UK-based bookrunners amounted to around 35%.

(v) **Derivatives transactions conducted in London amount to around one-fifth of the euro area real economy's total hedging activities.** The share of UK-domiciled institutions in the provision of hedging services to euro area non-financial counterparties for all types of over-the-counter (OTC) derivative classes combined is estimated to be between 16% and 22% of outstanding transactions. For trades with all counterparty types (i.e. including financials) the UK

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7 According to ECB MFI balance sheet items statistics.

8 According to Dealogic. Many of the syndicated loans are granted for the purpose of financing merger and acquisition (M&A) transactions. The share of UK banks in total M&A loan-financed deals has been declining and amounted to around 15% in 2016.

9 It may be the case that many of the arranging units of euro area banks participating in syndicated loan deals with euro area companies are also based in London.

10 See, for example, Gadanecz, B., "The syndicated loan market: structure, development and implications", *BIS Quarterly Review*, December 2004.

11 These figures, however, include double listings where shares or debt securities are issued on both UK and EU27 stock exchanges.

share increases to 20-25%.[12] UK-domiciled subsidiaries of US (and to a lesser extent Swiss and Japanese) broker-dealers play a major role in trades with euro area non-financial counterparties.

(iv) **UK-domiciled central counterparties (CCPs) play an important role in clearing euro-denominated transactions.** The role of UK CCPs is most important for the clearing of euro-denominated OTC derivatives and repos. Furthermore, money market transactions cleared through UK CCPs represent a significant share of the total business conducted by euro area counterparties in several key money market instruments, such as secured transactions and overnight index swaps. However, non-financial counterparties do not clear trades directly with CCPs, but use the services of clearing members.

While it is difficult to make a definitive assessment of all financial stability implications of Brexit, on the whole, the risk that the euro area economy would be excluded from access to wholesale and retail financial services appears limited. Although a number of crucial financial services for the euro area economy are currently provided from London, euro area entities will probably retain sufficient access to financial services post-Brexit, as some (unregulated) services can continue to be provided from the United Kingdom, some will be provided by EU-domiciled entities instead, and/or some of the entities currently providing such services will relocate from the United Kingdom to the remaining EU Member States (the EU27).

The impact of the loss of EU passporting rights for UK-domiciled institutions and the implied need to relocate to the EU27 differs across types of activities. For services partly covered by a third-country equivalence, the outcome will depend on negotiations. For unregulated services (e.g. FX trading), the impact of Brexit may be limited, as it would not result in restrictions on the continued provision of such services. For other services, including banking, firms would be compelled to relocate to the EU in order to continue to benefit from EU passporting rights and to service EU markets. In principle, certain banking services (such as large corporate loans) could still be provided to euro area customers by entities outside the EU.[13,14] However, those entities would not be taking deposits within the EU, which may limit their ability to provide loans to EU companies. In addition, for many non-EU banks catering to EU companies, the provision of loans is only one part of their business, as it is often accompanied by a range of ancillary services.

Preparations will, however, need to be properly managed to avoid “cliff-edge” effects. Therefore, it is important that banks engage in proper and timely planning to reduce the risks of a

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[12] According to ECB transaction-level EMIR data from five trade repositories and ECB calculations. Sources of aggregate data on derivatives – such as BIS OTC derivatives surveys – indicate much higher figures for UK-based transactions. For instance, according to the 2016 Triennial Survey, UK-based sales desks account for 82% of European activity in OTC interest rate derivatives. However, these sources do not allow the singling out of UK trades with euro area (non-financial) counterparties only.

[13] The provision of loans per se is not regulated in the Capital Requirements Directive (CRD IV), but is regulated in Union law at least with regard to consumer and mortgage credit. Thus, the possibility to provide loans to households would be limited by such legislation. Other activities covered under the CRD IV for credit institutions include financial leasing, payment services, guarantees and commitments, trading for own account or for the account of customers, participation in securities issues and the provision of services related to such issues, advice to undertakings on capital structure, industrial strategy and M&As, money broking, portfolio management, custody services and investment services provided for in the Markets in Financial Instruments Directive (MiFID II).

[14] It may be that pan-European syndicated loan agreements and revolving credit facilities will need to be split into a UK part and an EU part, which could potentially lead to a tightening of the credit terms and conditions; see, for example, *Implementing Brexit: practical challenges for wholesale banking in adapting to the new environment*, Association for Financial Markets in Europe, April 2017.

cliff-edge effect, especially if no transitional agreement is reached. Generally, risks appear to be contained, provided that affected entities adequately plan for a “worst case” scenario.

In the longer term, a new equilibrium may even be beneficial for some euro area institutions looking to take advantage of the business opportunities created by Brexit. While a tremendous depth and breadth of financial services capacity – including skilled personnel, capital, institutions and infrastructure – currently resides in the United Kingdom, the beneficiaries of relocations are likely to be existing EU financial centres that already have infrastructure in place that can be scaled up, which should also limit concerns over possible shortfalls in capacity.

The impact of Brexit on financial services is likely to be mainly reflected in the cost of external finance rather than in a reduction in available services. Moving from a centralised wholesale banking market based in London towards a potentially more fragmented landscape, and thereby forgoing synergies reaped from the economies of scale and scope of the City of London, could increase the cost of capital for households and non-financial corporations.[15] While such financing cost increases are likely to be modest and are very difficult to quantify at this point, the prospect of a less deep capital market within the EU adds more incentive to make swift progress on an ambitious capital markets union.

1.2 Re-emerging sovereign debt sustainability concerns amid political uncertainties and higher long-term interest rates

Stress in sovereign bond markets has edged up somewhat, but remains contained. The composite indicator of systemic stress in euro area sovereign bond markets has risen since the publication of the last FSR (see **Chart 1.12**). The bulk of the increase took place around the turn of the year, partly reflecting higher political uncertainty. However, euro area spreads have narrowed and sovereign stress conditions improved somewhat following the election in France. Despite the overall increase in the sovereign bond market systemic stress indicator and continued underlying cross-country heterogeneity, stress has remained contained compared with the conditions seen at the onset of the global financial crisis and at the height of the euro area sovereign debt crisis. This is at least partly due to the existence of the ECB’s public sector purchase programme. That said, global determinants, such as direct spillover effects from higher bond yields in the United States, and area-wide forces, like improved nominal growth prospects in the euro area, have lifted euro area bond yields higher. At the same time, country specificities such as lingering apprehension regarding programme implementation in Greece as well as residual concerns regarding the persistence of the sovereign-bank nexus in some countries have played a role too.

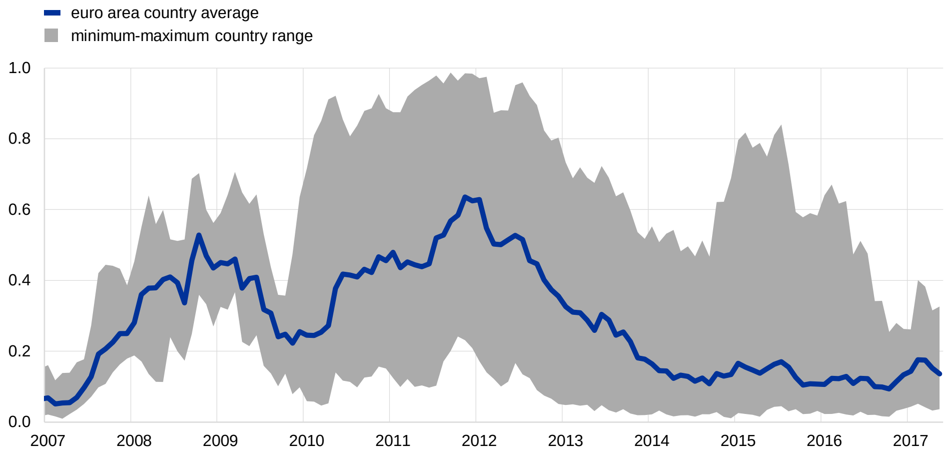
[15] See Sapir, A., Schoenmaker, D. and Veron, N., “Making the best of Brexit for the EU27 financial system”, *Policy Brief*, Issue 1, Bruegel, February 2017.

Chart 1.12

Stress in sovereign bond markets has picked up somewhat in the euro area, but is still relatively contained

Composite indicator of systemic stress in euro area sovereign bond markets

(Jan. 2007 – May 2017)



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 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. Figures for May 2017 cover the period 1-12 May 2017.

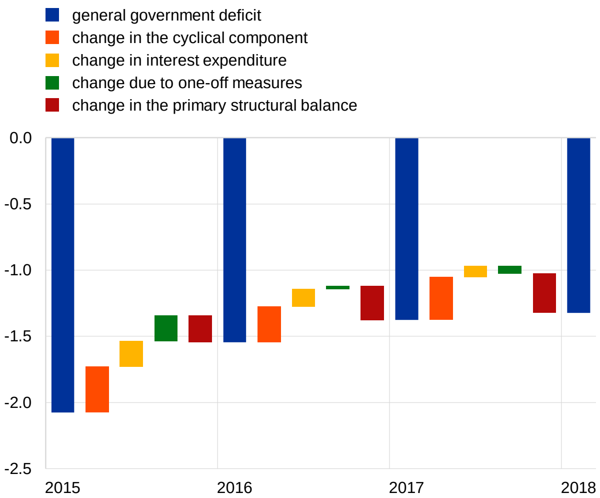
Headline fiscal balances are set to improve in most countries, but underlying fiscal fundamentals remain fragile. The aggregate euro area fiscal deficit has fallen from 2.1% of GDP in 2015 to 1.5% of GDP in 2016 and is expected to decrease further, albeit at a more moderate pace than in previous years. According to the European Commission's spring 2017 forecast, the headline balance is projected to fall to -1.4% in 2017 and to -1.3% in 2018 for the euro area as a whole (see **Chart 1.13**). At the country level, headline deficits are expected to fall below the Maastricht Treaty reference value of 3% of GDP by 2018 in all countries, except France. The improvement in the aggregate euro area fiscal balance over 2016-18 is expected to be predominantly driven by an accelerating cyclical momentum and, to a lesser extent, lower interest expenses. The latter are forecast to decline to 2.0% of GDP by 2018, down from 3% of GDP in 2012 at the height of the euro area sovereign debt crisis, as larger parts of debt are refinanced at low rates. These factors mask, however, a loosening fiscal stance on aggregate. In fact, the European Commission projects primary structural balances to continue having an adverse impact on headline fiscal balances over the forecast horizon on account of waning fiscal consolidation efforts. This may pose challenges to achieving the medium-term objectives envisaged under the Stability and Growth Pact (SGP) in a number of euro area countries. In addition, structural reforms appear to have also lost momentum lately (see **Chart 1.14**). Unwavering pursuit of structural reforms would yield long-term benefits by lifting the growth potential, thereby supporting fiscal solvency, among other things. At the same time, a shift towards a more growth-friendly composition of public finances could help create fiscal space by cutting distortionary taxes and unproductive expenditure and, thereby, reach the medium-term objectives faster.

Chart 1.13

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

General government deficit in the euro area

(2015-18; percentages of GDP)



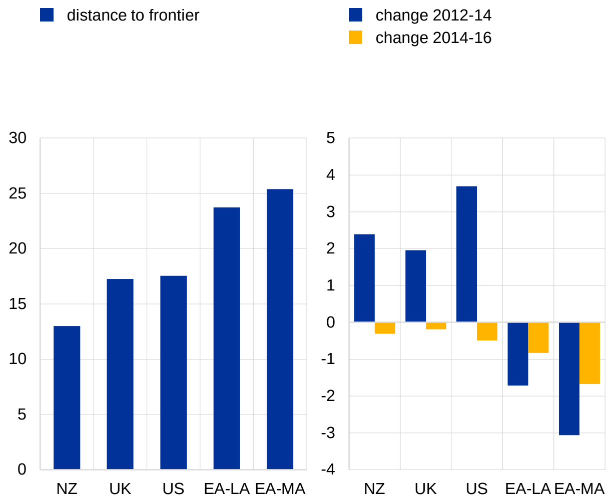
Sources: European Commission (AMECO database) and ECB calculations.
Note: Improving GDP growth prospects are captured by the cyclical component.

Chart 1.14

Implementation of structural reforms needs to be stepped up to increase resilience

Ease of doing business

(2016; scores, percentage changes)



Sources: World Bank Doing Business database and ECB calculations.
Notes: The distance to frontier score measures the distance of each economy to the "frontier", which represents the best performance observed for each of the indicators across all economies in the World Bank's Doing Business sample since 2005. An economy's distance to the frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 indicates the frontier. The original figures obtained from the Doing Business database are then subtracted from 100 for the sake of a better visualisation of the gap to the frontier. Accordingly, a lower value means a state of being closer to the frontier, while an increase (decrease) in the value indicates a deteriorating (improving) situation. The various euro area aggregates represent a simple average of underlying country values. EA-MA comprises euro area countries more affected by the financial crisis (Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain), while EA-LA stands for euro area countries less affected by the crisis (all other euro area countries). NZ stands for New Zealand, the best-ranked country in the World Bank's 2017 Doing Business ranking.

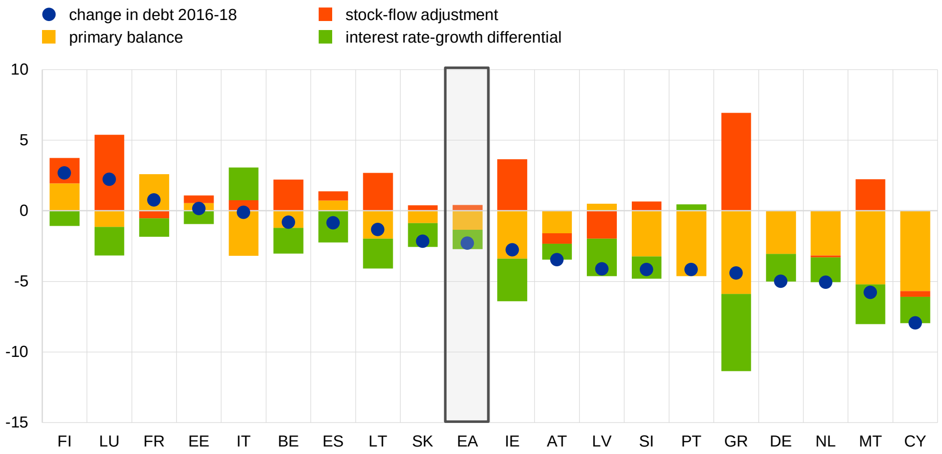
The euro area general government debt-to-GDP ratio is expected to continue declining, but remains high by historical standards. Having continued on a downward path in 2016, the aggregate euro area government debt-to-GDP ratio is projected by the European Commission to decline further to 90.3% in 2017 and 89.0% in 2018 – a figure which is, however, still almost 25 percentage points higher than before the financial crisis. This declining trend is predicated on favourable assumptions for the interest rate-growth differential ("snowball effect") and projected primary surpluses for the euro area as a whole. This notwithstanding, for some euro area countries with debt levels already exceeding the 60% of GDP Maastricht Treaty threshold, debt ratios are projected to see a further rise (Finland) or remain broadly stable (France) by 2018 owing to primary deficits (see **Chart 1.15**). Moreover, efforts to keep debt dynamics on a sustainable path face headwinds in some countries (i.e. Italy and Portugal) where interest rates are expected to exceed growth, leading to a positive "snowball effect".

Chart 1.15

Public debt levels are expected to drop in almost all euro area countries

Decomposition of the change in public debt levels

(2016-18; percentages of GDP)



Source: European Commission spring 2017 forecast.

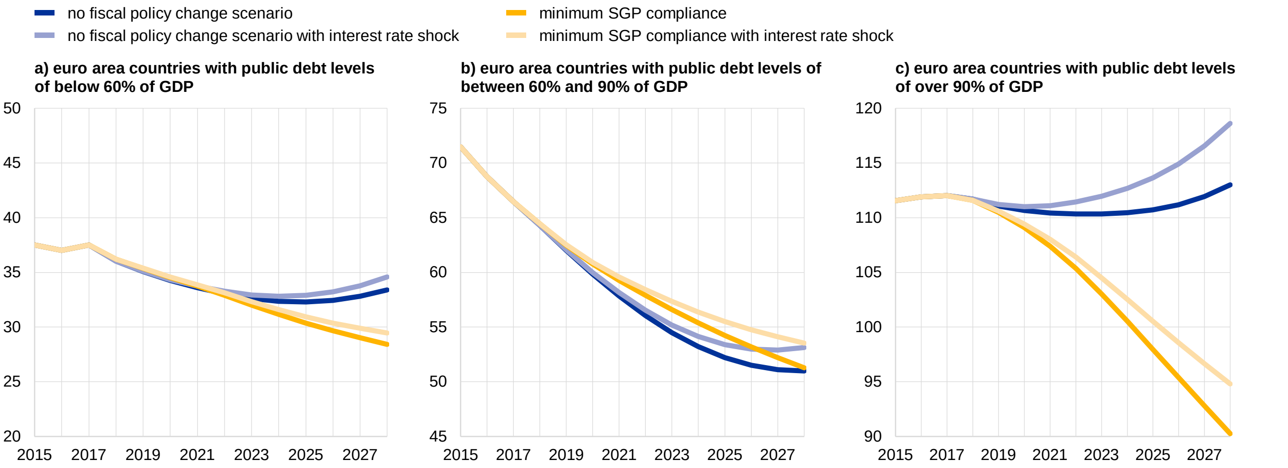
Government debt sustainability may be challenged by renewed political uncertainty and a repricing of sovereign risk. In the short term, several factors may challenge the sustainability of public finances. First, the electoral cycle in some countries may result in delays of much-needed fiscal and structural reforms, while increasing political fragmentation may lead to less reform-oriented and more domestically focused policy agendas, undermining cross-country cooperation at the EU level. Higher political uncertainty and fragmentation in and across EU countries could, therefore, lead to renewed market concerns about public debt sustainability in some countries. Second, potential further increases in long-term interest rates (in the absence of a concomitant improvement in economic conditions) may exacerbate the positive interest rate-growth differential in some countries. The importance of these two factors is illustrated in simulation results, which suggest that the absence of additional consolidation efforts ("no fiscal policy change" scenario) would put the debt ratio on a clearly unsustainable path in highly indebted countries, with an interest rate shock additionally worsening this dynamic (see **Chart 1.16**).

Chart 1.16

The impact of an interest rate shock is the highest for countries with large debt burdens

Stylised debt scenarios for groups of euro area countries

(2015-28; percentages of GDP)



Sources: European Commission winter 2017 forecast and ECB calculations.

Notes: Euro area countries with public debt levels below 60% of GDP comprise Estonia, Latvia, Lithuania, Luxembourg and Slovakia. Countries with public debt levels of between 60% and 90% of GDP include Austria, Finland, Germany, Ireland, Malta, the Netherlands and Slovenia, while countries with debt levels of over 90% are Belgium, Cyprus, France, Greece, Italy, Portugal and Spain. The “no fiscal policy change” scenario represents a scenario of no additional fiscal measures compared with the baseline European Commission winter 2017 forecast (2016-18) and a constant structural primary balance (SPB) as of 2018 until the end of the simulation horizon. The change in ageing costs as projected in the Ageing Working Group (AWG) risk scenario of the 2015 Ageing Report is added to the SPB in this scenario. Under the “minimum SGP compliance” scenario, countries below their medium-term objective (MTO) are assumed to take additional consolidation measures (minimum to avoid sanctions under the SGP) as of 2018 to reach the country-specific MTOs (which partly account for the additional ageing burden). Countries whose structural fiscal position is above the MTO (Germany, Luxembourg and the Netherlands) are assumed to take stimulus measures and revert to the MTO (see, for instance, the effect in the second group of countries where the debt path under the “no fiscal policy change” scenario is below that under the “minimum SGP compliance” scenario for most of the simulation period. Towards the end of the period, the more favourable debt paths in Germany and the Netherlands in the “no fiscal policy change” scenario are offset by the higher (in some cases even explosive) debt paths in the other countries. The bright lines represent a standard shock scenario of +100 basis points applied as of 2019 to the marginal market interest rate, keeping the other assumptions of the two baseline scenarios broadly unchanged. To separate the effect of the interest payment shock, in the “minimum SGP compliance” scenario, no additional consolidation to account for the higher interest expenditure (normally required under the SGP) is considered. For more details on the derivation of the benchmark and no fiscal policy change scenarios, see Bouabdallah et al., “Debt sustainability analysis for euro area sovereigns: a methodological framework”, *Occasional Paper Series*, No 185, ECB, 2017.

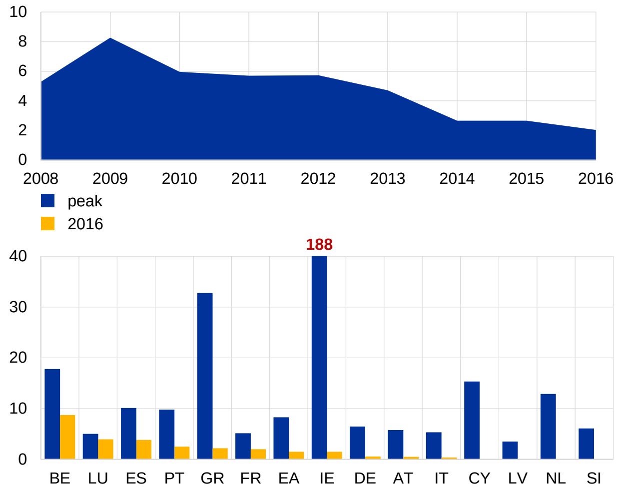
Sovereigns’ potential exposures to their respective banking sectors can in some cases still pose residual risks to debt sustainability. While steps towards a genuine European banking union, including bail-in and bank resolution arrangements, have brought about a relative weakening of the sovereign-bank nexus since the euro area sovereign debt crisis, some residual risks remain. Having decreased considerably since their peaks, explicit contingent liabilities of some euro area sovereigns vis-à-vis the national banking sector are still substantial (see **Chart 1.17**). At the same time, the share of sovereign debt in total banking sector assets – although falling since the start of the ECB’s public sector purchase programme in March 2015 – remains sizeable in some countries (see **Chart 1.18**). This suggests that, in the event of a major repricing of sovereign debt, some implicit contingent liabilities to the banking sector may crystallise and new obligations for the sovereign may arise, thereby setting off an adverse feedback loop between bank and sovereign creditworthiness.

Chart 1.17

The stock of explicit contingent liabilities to the financial sector continues to fall

Explicit contingent liabilities to the financial sector in the euro area and in individual euro area countries

(2008-16, 2016; percentages of GDP)



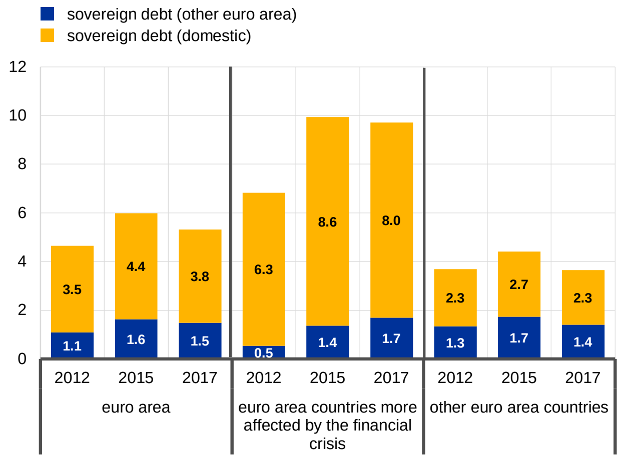
Sources: Eurostat and ECB calculations.
Notes: Contingent liabilities refer to government interventions to support financial institutions, which may contribute to government debt in the future but are not currently recorded as government debt (e.g. guarantees granted on financial institutions' assets and/or liabilities, operations related to special-purpose vehicles, securities issued under liquidity schemes). The peaks are country-specific and relate to 2008 in Ireland, 2009 in Austria, Belgium, France, Germany, Latvia and the Netherlands, 2010 in Cyprus and Slovenia, 2011 in Greece, and 2012 in Italy, Luxembourg, Portugal and Spain.

Chart 1.18

Banks have reduced their sovereign debt holdings since the start of the ECB's public sector purchase programme amid a slight decrease in home bias

Euro area banks' sovereign debt holdings

(June 2012, Mar. 2015, Mar. 2017; percentages of total assets)



Sources: ECB (MFI statistics) and ECB calculations.
Notes: Observations refer to June 2012 (month before President Draghi's "whatever it takes" speech), February 2015 (month before the start of the ECB's public sector purchase programme) and March 2017 (latest observation). Euro area countries more affected by the financial crisis comprise Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.

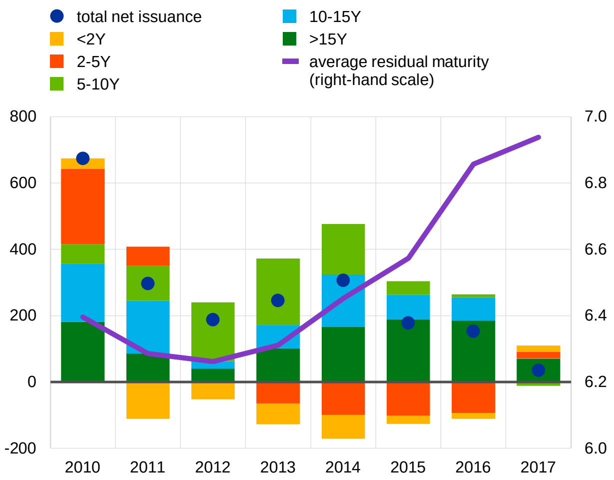
Relatively favourable sovereign financing conditions continue to mitigate rollover risks. Despite the recent pick-up in euro area sovereign bond yields, pricing conditions have remained relatively benign for euro area governments, amid ongoing Eurosystem asset purchases (see Section 2). At the same time, the trend towards longer durations has continued in the current low-yield environment, as reflected by ongoing strong issuance activity beyond the 15-year horizon (see **Chart 1.19**). This has led to a further increase of the average residual maturity of outstanding euro area government debt securities, which reached almost 7 years in early 2017, up from 6.2 years at the height of the euro area sovereign debt crisis. In terms of the underlying interest rate structure, a reduction in zero-coupon and floating rate debt and the concurrent increase in fixed rate debt allow sovereigns to capitalise on the historically low interest rates and to reduce the cost of refinancing debt. The overall shift in net issuance activity towards the long end of the maturity spectrum in recent years has helped to reduce the gross financing needs of euro area governments which are expected to drop further from 15.5% of GDP in 2016 to below 13.8% of GDP in 2017 (see **Chart 1.20**), thereby mitigating rollover risks. That said, a considerable degree of heterogeneity in terms of debt servicing needs across the euro area may suggest possible pockets of remaining rollover risk in the event of a sovereign risk repricing.

Chart 1.19

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

Net issuance of government debt securities by original maturity

(2010-17; € billions, years)



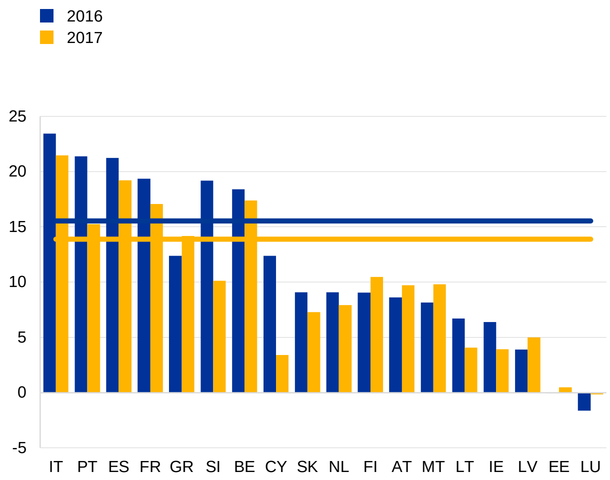
Sources: ECB Centralised Securities Database (CSDB) and ECB calculations.
Note: Figures for 2017 cover data up to March 2017.

Chart 1.20

Government financing needs are expected to fall further as governments lock in long-term funding at low costs

Gross general government financing needs in the euro area

(2016, 2017; percentages of GDP)



Source: European Commission (AMECO database), ECB CSDB and ECB calculations.
Notes: The financing need is calculated as the sum of the budget deficit (European Commission spring 2017 forecast) and the gross redemption of outstanding government debt for a given year. For the short-term debt, past redemptions count only once the security has been redeemed. 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. Loans, including those under official assistance for post-programme countries, are not included. Greece, as a programme country, is excluded.

All in all, sovereign risks appear to have increased somewhat since the last FSR. The ongoing economic recovery and continued relatively favourable sovereign financing conditions in terms of both pricing and duration continue to mitigate sovereign risks. In this environment, headline balances improved and general government debt is on a declining path at the aggregate euro area level, but this masks the fragility of public finances in some countries. In particular, waning structural reform and fiscal adjustment efforts amid the potential for higher political uncertainty, higher long-term interest rates and residual risks related to financial sector support in some countries may challenge public finances going forward. The materialisation of any of these risks – in isolation or in combination – may trigger a further repricing of sovereign debt and fuel concerns regarding its sustainability in some countries (see Overview).

1.3 Favourable economic and financial conditions underpin the recovery of the non-financial private sector

Households and non-financial corporations

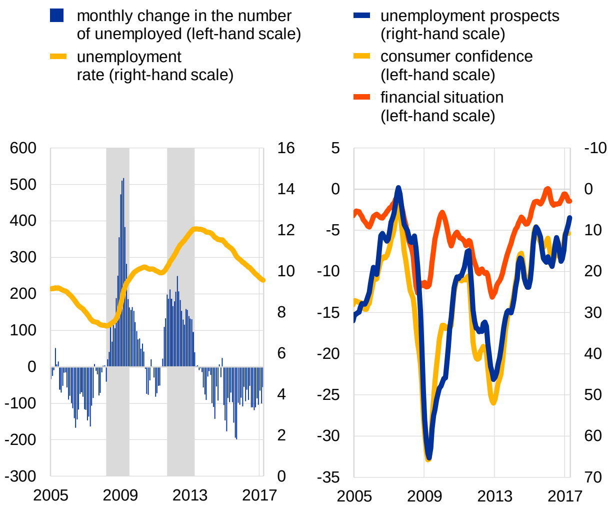
Income risks for euro area households are dissipating amid improving economic conditions. Households' income position is bolstered by improving labour market conditions, with the euro area unemployment rate reaching its lowest level since mid-2009 (see **Chart 1.21**), while employment continued to grow owing primarily to job creation in the services sector. Still, nominal income growth remained relatively muted, with real disposable income growth of euro area households decelerating somewhat towards year-end 2016 given higher inflation outturns. Household net worth increased, mostly owing to higher capital gains on real estate holdings (see **Chart 1.22**), offsetting lower positive contributions from financial asset holdings (resulting from significant valuation losses on pension and life insurance products following higher market and discount interest rates that dampened the valuation gains on direct and indirect equity holdings). Looking ahead, the financial situation of the euro area household sector is expected to recover further, buttressed by improving labour market conditions, even though continued labour market slack in some countries continues to weigh on households' income prospects.

Chart 1.21

Improving labour market conditions coupled with benign sentiment and confidence suggest lower income risks

Developments in labour market conditions, consumer confidence and euro area households' expectations about their financial situation and unemployment prospects

(Jan. 2005 – Mar. 2017; left panel: percentage and number in thousands; right panel: percentage balances, three-month moving averages)



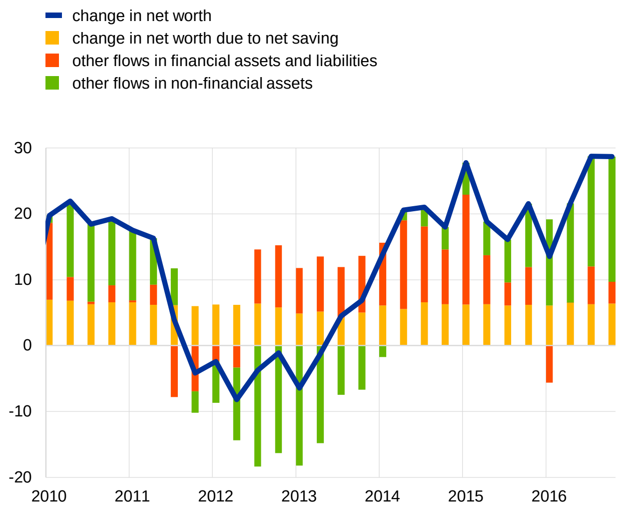
Sources: European Commission, Eurostat and ECB calculations.
Notes: The grey shaded areas indicate euro area recessions. Unemployment prospects are presented using an inverted scale, i.e. an increase (decrease) of the indicator corresponds to more (less) optimistic expectations.

Chart 1.22

Improved net worth of households helps mitigate balance sheet pressures

Change in the net worth of euro area households

(Q1 2010 – Q4 2016; four-quarter moving sums, percentages 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.

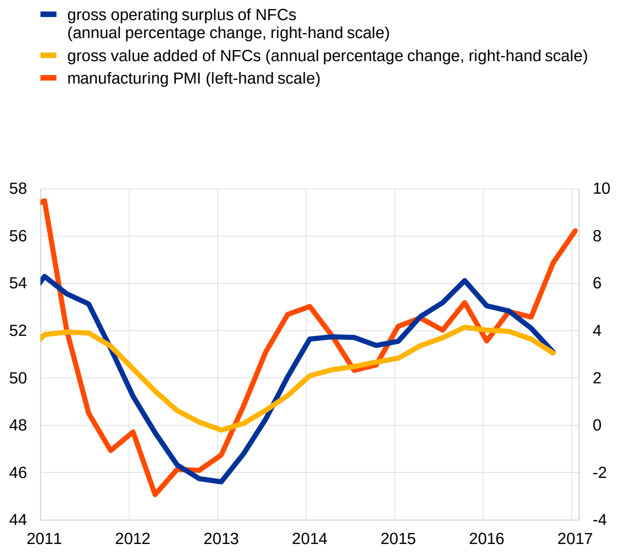
The profitability of non-financial corporations remains weak, albeit improving. The earnings-generation capacity of euro area non-financial corporations (NFCs) has improved somewhat, driven by the gradual economic recovery, but corporate profitability has remained muted by historical standards. However, corporate profitability is expected to improve as the recovery gathers pace (see **Chart 1.23**), as typical cyclical headwinds such as higher wages and interest rates are unlikely to provide much of a drag in the near term, thereby also alleviating pressures on more vulnerable firms that are confronted with debt servicing difficulties.

Chart 1.23

Corporate profitability is set to improve against the backdrop of the cyclical upturn

Gross operating surplus and gross value added of euro area NFCs as well as the manufacturing PMI

(Q1 2011 – Q1 2017; percentages of gross value added, annual percentage changes)



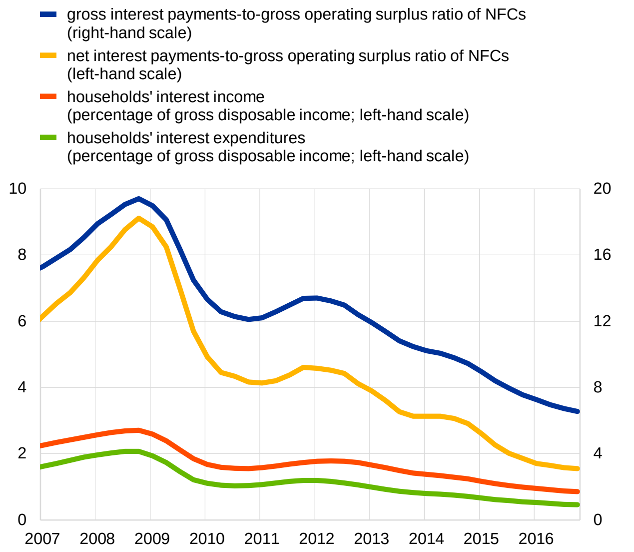
Sources: Eurostat and ECB calculations.

Chart 1.24

The interest payment burden of households and non-financial corporations has reached record lows

Interest payment burden of the euro area non-financial private sector

(Q1 2007 – Q4 2016; four-quarter moving sums, percentages)



Sources: Eurostat and ECB calculations.

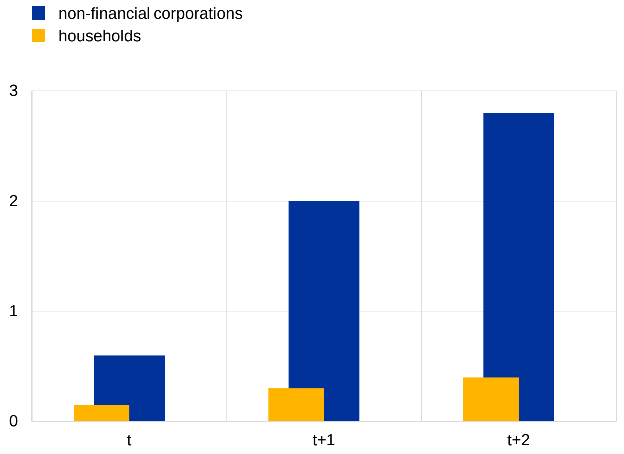
Despite improvements in income and earnings prospects, legacy balance sheet concerns continue to weigh on the euro area non-financial private sector. On average, the indebtedness of euro area households fell slightly to 58.7% of GDP as at year-end 2016, a level last observed in early 2007, while at the same time the level of non-financial corporate debt stood at 107.8% of GDP on an unconsolidated basis or 84.3% of GDP on a fully consolidated basis. Both figures remain high by historical comparison, with balance sheet repair in the household and non-financial corporate sectors proceeding only gradually at the aggregate euro area level. In particular, a still weak nominal growth environment coupled with legal impediments (e.g. design of bankruptcy procedures, costs and length of contract enforcement, etc.) in several countries hinder a more meaningful deleveraging of the non-financial private sector. That said, these aggregate figures mask a considerable degree of heterogeneity at the country and sector levels. In particular, for non-financial corporations, deleveraging has been more forceful in countries (e.g. Ireland and Spain) and sectors (e.g. construction and real estate services) that had accumulated large amounts of debt prior to the crisis. At the same time, other leverage measures such as debt-to-total assets and debt-to-equity ratios point to more favourable developments. They have declined markedly since mid-2012, standing now at or close to their historical lows. The decline in these measures can be mostly attributed to the increase in share prices, which has facilitated the deleveraging via the positive denominator effect.

Chart 1.25

The impact of an interest rate shock appears to be relatively small, in particular for euro area households

The impact of a +100 basis point interest rate shock on the gross interest payments of euro area households and non-financial corporations

(percentages of gross operating surplus and gross disposable income)



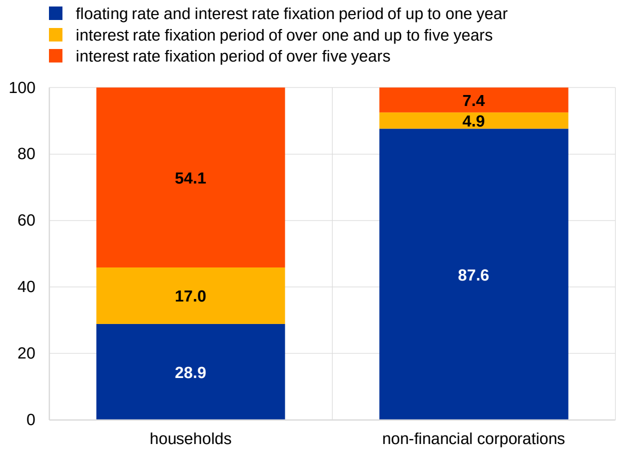
Sources: ECB and ECB estimates.
Note: The simulations capture the effects of a 100 basis point increase in short-term and long-term market interest rates in the first, second and third year after the shock.

Chart 1.26

Loans with floating rates or rates with rather short fixation periods are more widespread for euro area non-financial corporations

Decomposition of new loans to households and non-financial corporations by type of underlying interest rate arrangement

(average values covering a five-year period between April 2012 and March 2017, percentages of total loans)



Sources: ECB and ECB calculations.
Notes: Loans to households comprise loans for house purchase, consumer lending and other lending. In terms of the underlying interest rate arrangement, lending to households and non-financial corporations is fairly heterogeneous across the euro area. In some countries lending at variable rates predominates, while in others lending at fixed rates is more widespread.

A favourable interest rate environment mitigates corporate debt sustainability concerns at the current juncture. Continued high debt levels suggest additional deleveraging needs in a number of countries, even if gradually improving corporate profitability coupled with record low interest payment burdens support borrowers' debt servicing capacity (see **Chart 1.24**). Simulation results suggest that a 100 basis point increase in short and long-term market interest rates would result in a fairly limited increase in the gross interest payments of euro area non-financial corporations.[16] Given the longer maturity of outstanding debt and the lower share of variable rate debt on their balance sheets, an equivalent rise in market interest rates would have even smaller effects for euro area households (see **Chart 1.25**), although granular analysis suggests that it would disproportionately affect more vulnerable households (see **Box 2**). Nonetheless, further balance sheet repair should help offset any risks related to an eventual normalisation of interest rates and the ensuing rise in debt servicing costs. This might be challenging for borrowers located in those countries where loans with floating rates or rates with rather short fixation periods predominate, with non-financial firms relatively more exposed in this

[16] The simulation results are based on time-series models used to project interest paid by euro area non-financial corporations and households. The models relate changes in the interest paid by non-financial corporations and households to changes in the outstanding amounts of short-term and long-term debt of non-financial corporations and households as well as to changes in short-term and long-term market interest rates. The results consider only the direct impact of higher market interest rates on interest paid. They do not take into account the impact of higher market interest rates on economic activity, profits, income and debt financing.

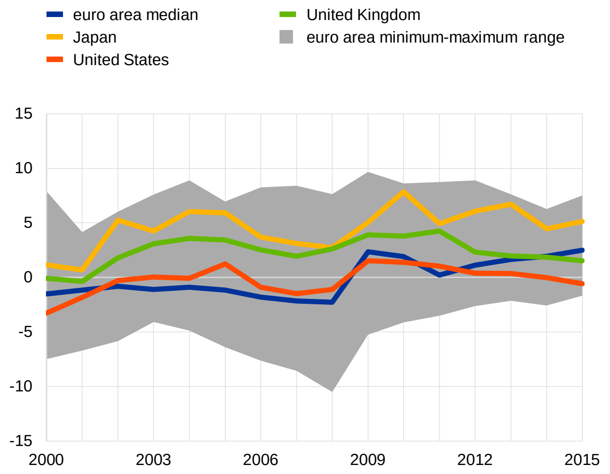
regard (see **Chart 1.26**). That said, a higher debt service burden for borrowers in a rising interest rate environment is likely to be offset in part by the positive impact of improved macroeconomic conditions on households' and firms' income and earnings situation. At the same time, record high liquid asset holdings and historically low debt servicing costs should mitigate the possible negative impacts of high debt levels on the economy in the current circumstances.

Chart 1.27

The euro area non-financial corporate sector has become a net lender since the onset of the financial crisis amid anaemic corporate investment

Net lending/borrowing of non-financial corporations

(2000-15; percentages of GDP)



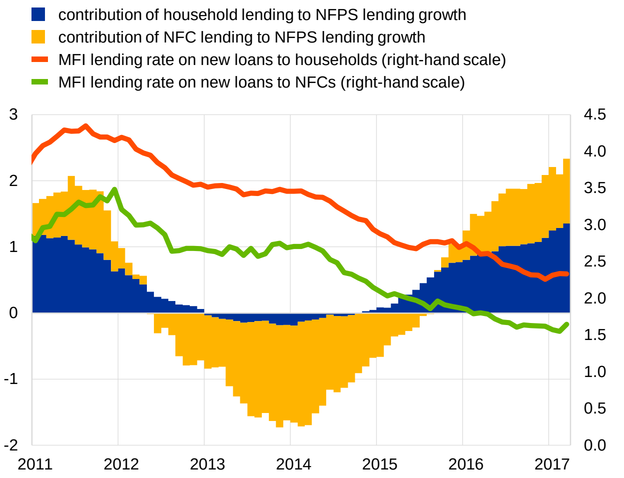
Sources: OECD and ECB calculations.
Note: The euro area aggregate comprises Austria, Belgium, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

Chart 1.28

Bank lending to the euro area non-financial private sector has recovered further, while lending rates remain at or close to record lows

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

(Jan. 2011 – Mar. 2017; annual percentage point contributions, percentages per annum)



Sources: ECB and ECB calculations.
Notes: NFPS stands for non-financial private sector, which comprises non-financial corporations as well as households (including non-profit institutions serving households). Lending rates to households are a weighted average of interest rates on new loans to households for house purchase, consumer loans and other household loans.

Ample internal financing sources of euro area firms may underpin corporate deleveraging and investment activity. Similar to other international peers, the euro area corporate sector became a net lender in the aftermath of the global financial crisis (see **Chart 1.27**). This can be attributed to multiple factors, including deleveraging needs, continued uncertainties surrounding the strength of the global (including euro area) economic recovery and related muted investment activity, heightened political uncertainties and low opportunity costs of holding liquid assets. The record high and increasing cash balances of euro area non-financial firms could make a significant contribution to both reducing leverage and, eventually, financing the economic recovery by boosting investment.

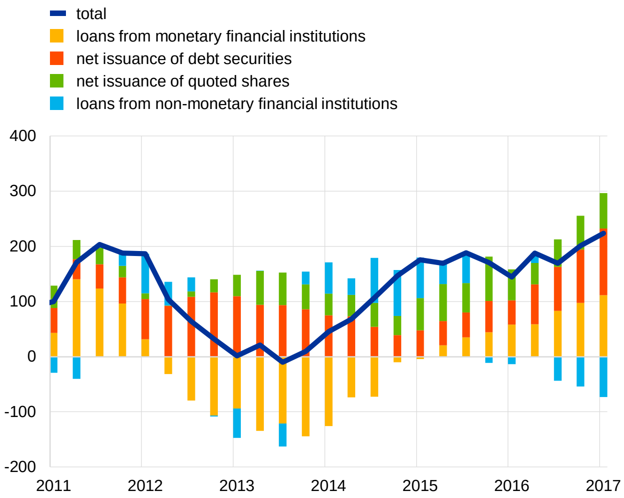
Regarding external financing sources, bank lending flows to the non-financial private sector strengthened further amid falling lending rates. Overall, bank lending to euro area households and non-financial corporations has continued to firm gradually (see **Chart 1.28**), supported by improved demand and supply conditions. The recovery in bank lending is supported by historically low bank lending rates across the maturity spectrum in almost all lending categories, as banks pass on lower funding costs to borrowers. Still, overall loan dynamics have remained muted, given residual deleveraging needs and high liquidity buffers of households and non-financial firms. Developments at the country level remain fairly heterogeneous though. Credit to the non-financial private sector continued to contract in countries more affected by the financial crisis (e.g. Cyprus, Ireland, Greece, Portugal and Spain), while in other euro area countries (e.g. Belgium, Luxembourg and Slovakia) developments were more buoyant.

Chart 1.29

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

External financing of euro area NFCs

(Q1 2011 – Q1 2017; € billions, four-quarter moving flows)



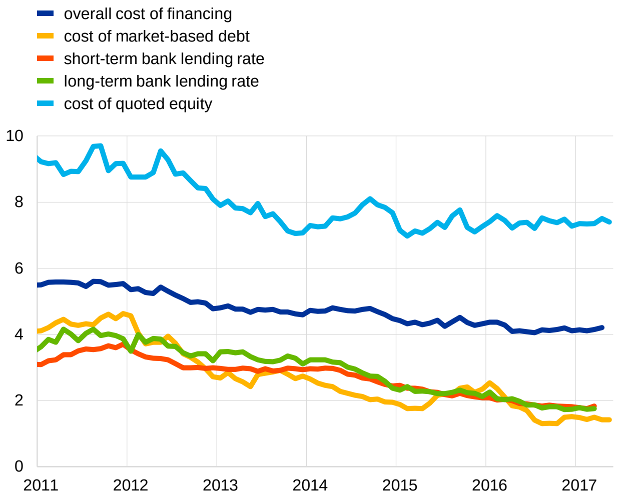
Sources: Eurostat, ECB, Dealogic and ECB calculations.
Note: Loans from monetary financial institutions to NFCs are corrected for cash pooling, loan sales and securitisations, while loans from non-monetary financial institutions exclude loan securitisations.

Chart 1.30

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

Nominal cost of external financing of euro area NFCs

(Jan. 2011 – May 2017; percentages 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.

Non-financial corporations continued to enjoy favourable financing conditions also in terms of non-bank sources of financing. Euro area non-financial firms' external financing from non-bank sources strengthened further at the turn of 2016-17 (see **Chart 1.29**), supported by historically low overall nominal costs of external financing. The net issuance of debt securities has continued to increase against the backdrop of the ECB's corporate sector purchase programme and the stabilisation of the nominal cost of market-based debt around the levels recorded in the summer of 2016 (see **Chart 1.30**). Excluding the impact of a merger in one euro area country, the net issuance of quoted shares by NFCs continued to be relatively modest, as the cost of equity remained much higher than the cost of debt finance. Loans from non-monetary financial institutions showed net redemptions, mirroring the winding-down of a special-purpose entity and repayments of debt securities issued by non-financial corporate conduits in a number of countries.

All in all, favourable financing conditions should bolster the ongoing recovery of the non-financial private sector, but risks remain. The financing conditions for euro area households and firms remain favourable and supportive of both domestic demand and debt servicing, although the decline in the cost of debt financing has recently shown signs of a possible stabilisation driven by global factors. However, remaining deleveraging needs, heightened political uncertainty at the national and EU levels and a potential risk repricing in bond markets may constrain the availability and/or increase the cost of financing for the non-financial private sector in the euro area, dampening the positive effects of very accommodative ECB policies, and reignite debt sustainability concerns in countries with elevated household and non-financial corporate debt levels.

Box 2
Financial vulnerability of euro area households

Monitoring households' debt servicing capability is vital from a financial stability perspective, not least given the relative importance of household lending in banks' loan portfolios and the potential associated impact on the profitability and solvency of banks. However, assessing the financial vulnerability of households is challenging, owing to the need for granular data on household assets, income and liabilities. A key source of consistent information based on households' self-reported assessments is the Household Finance and Consumption Survey (HFCS).[17] The rich data on the liabilities side of the household balance sheet available in the HFCS makes it a valuable resource for monitoring household financial fragility.

The second wave of the HFCS published in December 2016 revealed increased debt exposure per indebted household. The share of indebted households in the euro area stood at 42.4% in 2014 – a small decline relative to the 44% reported in the first wave. At the same time, the median outstanding amount of debt (for indebted households) increased from €24,000 to €28,200, driven mainly by households in the upper tail of the net wealth distribution. Mortgage debt accounted for 85.8% of total household debt, up from 82.8% in the first wave, and has thus remained by far the most important component of household liabilities.[18]

About one-third of low-income households reported incomes lower than expenses. To assess the degree of household vulnerability, it is useful to look into households' ability to save and the mechanisms used to finance spending above current income. Only 24.4% of low income households were able to save, while 34.9% had expenses that were higher than their income (see Chart A). This is different from the pattern observed in the highest income quintile, where 51.6% were able to save and only 10.8% spent more than their income. Recourse to savings and sales of assets are the most common methods households use to cover their overspending. Around 80% of high-income households can exercise this option, while only 50% of those in the first income quintile are able to do so (see **Chart B**). Recourse to help from relatives or friends is a minority option for rich households (20.8%), while it is almost as important as the use of savings for low-income households (48.1%). Around 15% of households in the first income quintile report that they rely on credit to meet their obligations; for households in the third income quintile and above the

[17] The second wave of the HFCS was released in December 2016. The HFCS collects household-level data on assets, liabilities, income, consumption and socio-demographic characteristics of more than 80,000 households in 18 euro area countries, as well as Hungary and Poland. Although there is some variability in the timing of the fieldwork across countries, the most common reference period is 2014.

[18] For a detailed comparison between the evolution of debt holdings between the two waves, as well as detailed descriptive statistics for different subpopulation groups, see "The Eurosystem Household Finance and Consumption Survey – results from the second wave", *Statistics Paper Series*, No 18, ECB, December 2016.

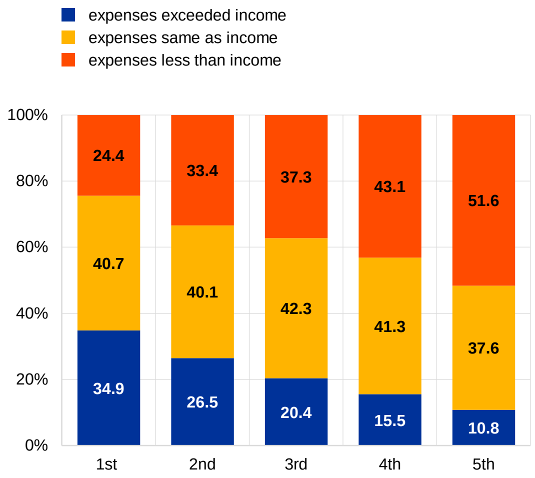
proportion is around 34%. This suggests that households which may be in an already fragile financial position still take on additional debt which they may eventually not be able to service. This, in turn, may increase the likelihood of loan losses for banks. Lastly, a non-negligible 20% of low-income households report that they leave some bills unpaid, leading to a loss of revenue and potentially impaired debt servicing capacities for the affected counterparties.

Chart A

For around one-third of households in the lowest income bracket expenses exceed income

Ability to save during last year by income quintile

(Q4 2016; percentages)



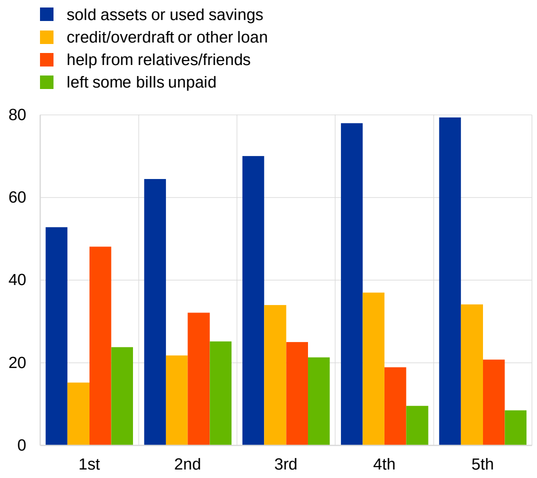
Sources: HFCS and ECB calculations.
Note: The exact question answered by the household is whether expenses exceeded income, was the same as income or was lower than income during the last 12 months.

Chart B

Rich households are better placed to meet expenses via recourse to savings or bank credit

Sources of extra income to meet expenses by income quintile

(Q4 2016; percentages)



Sources: HFCS and ECB calculations.
Note: Sample restricted to households whose expenses exceeded their income over the last 12 months.

Debt servicing uses up one-fifth of indebted low-income households' gross earnings. The debt service-to-income ratio indicates the pressures households are facing in the short term stemming from the obligations associated with the debt they have contracted. To obtain a more accurate picture of the current situation faced by euro area households, the HFCS data are "updated" using price series from national accounts up until the final quarter of 2016.[19] Based on these updated figures, the median indebted euro area household uses 13.5% of its gross income to cover debt payments. Indebted low-income households are in a more vulnerable position. A median debt service-to-income ratio of 20% for indebted households in the first income quintile contrasts with only 10% for the highest income quintile (see **Chart C**). Focusing on the age distribution, indebted households where the reference person is aged between 31 and 40 years exhibit the highest debt service-to-income ratio, which then decreases with age. Generally, it is households in this age bracket that have more recently taken out mortgages. In spite of low mortgage interest rates, these households are likely to have maximised the amount borrowed, and consequently face a higher debt servicing burden.

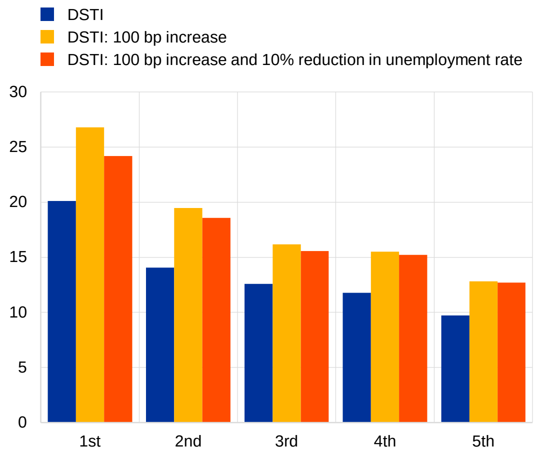
[19] For a detailed description of the simulation method used to update the HFCS data, see Ampudia, M., Pavlickova, A., Slacalek, J. and Vogel, E., "Household Heterogeneity since the Onset of the Great Recession", *Journal of Policy Modeling*, Vol. 38, Issue 1, 2016, pp. 181-197.

Chart C

An interest rate shock would affect low-income households the most

Actual and simulated median debt service-to-income ratios by income quintile

(Q4 2016; percentages)



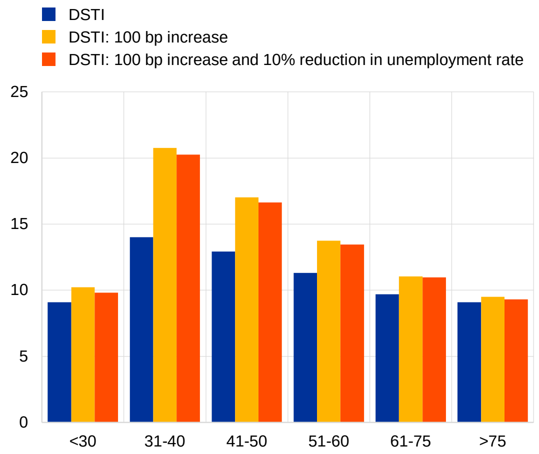
Sources: HFCS and ECB calculations.
Notes: The simulated debt service-to-income ratio assumes a 100% pass through of a 100 basis point interest rate increase to variable rate mortgage payments. Finland is excluded, owing to the lack of data on variable rate mortgages.

Chart D

Indebted households in the 31 to 40 age bracket have the highest debt servicing burden

Actual and simulated median debt service-to-income ratios by age bracket

(Q4 2016; percentages)



Sources: HFCS and ECB calculations.
Notes: The simulated debt service-to-income ratio assumes a 100% pass through of a 100 basis point interest rate increase to variable rate mortgage payments. Finland is excluded, owing to the lack of data on variable rate mortgages.

An interest rate shock could have a strong impact on households' debt servicing obligations and their capacity to meet them. A sensitivity analysis was undertaken to shed light on how the debt service-to-income ratios across the income and age distributions would change if interest rates were to increase by 100 basis points. Under the first pure "risk premium" shock scenario, it is assumed that other conditions, notably household incomes, remain unchanged, while in the second scenario the interest rate shock is coupled with a 10% decrease in unemployment rates in all countries. The second scenario represents a more positive situation in which interest rates have risen as a result of improved macroeconomic conditions.[20] Indebted low-income households would experience the largest impact on their debt servicing ratios. For them, the median debt service-to-income ratio would increase from 20% to 27% under the first scenario, thereby approaching the 30% mark, which is frequently used in the literature as a threshold for financial vulnerability concerns. Looking at the age distribution, households in the age brackets with the highest ratios would also experience the largest increases, while households at either end of the age distribution would see their median ratios broadly unchanged (see **Chart D**). Under the second scenario, the reduction in unemployment rates would mitigate these results, owing to its positive effect on household incomes, especially for those at the bottom of the income distribution, for whom the debt service-to-income ratio would rise to only 24%, compared with 27% under the first scenario. For high-income households, there is practically no difference between the two scenarios.

All in all, it seems that the financial vulnerability of indebted low-income households would be considerably exacerbated by an increase in interest rates, if it were not accompanied by an overall macroeconomic improvement reflected in higher incomes. Households which are

[20] The simulation assumes a 100% pass-through to variable rate mortgages. Payments on fixed rate mortgages are not affected by the interest rate change.

unable to resort to savings and are already relying on help from relatives and friends may find themselves in a particularly vulnerable position.

Property markets

Residential and commercial property markets have gained further momentum in the euro area. In the residential segment, the house price cycle continued to strengthen at the aggregate euro area level towards the end of 2016 (see **Chart 1.31**) supported by low interest rates and the ongoing economic recovery, with nominal residential property prices recording the highest growth rate since the final quarter of 2007. In real terms, residential real estate price growth is gradually approaching early warning thresholds. However, price valuations are estimated to be broadly in line with fundamentals at the aggregate euro area level (see Chart 4 in the Overview). At the same time, euro area (prime) commercial property markets have maintained a strong momentum in the context of the current low-yield environment and the ongoing search for yield. This trend masks considerable divergence of price developments across various property types though, with the prime retail segment being particularly buoyant (see **Chart 1.32**). In light of continued strong price increases, valuation estimates for prime commercial properties have departed further away from their long-term averages.[21]

Underlying property price dynamics have become more broad-based across countries. For residential property markets, this is evident in the narrowing dispersion of growth rates across countries (see **Chart 1.31**), with the majority of euro area countries now being in an upturn phase of the housing cycle. In fact, all countries but Cyprus, Greece and Italy recorded positive residential property price growth rates in 2016, but the pace of expansion still remained somewhat heterogeneous in the euro area. 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 often exceeded price trends at the overall country level in many countries (see **Box 3**). Cross-country variation decreased further in (prime) commercial property markets too, as the adverse ramifications of multi-year corrections in the context of the global financial crisis gradually dissipate at the country level.

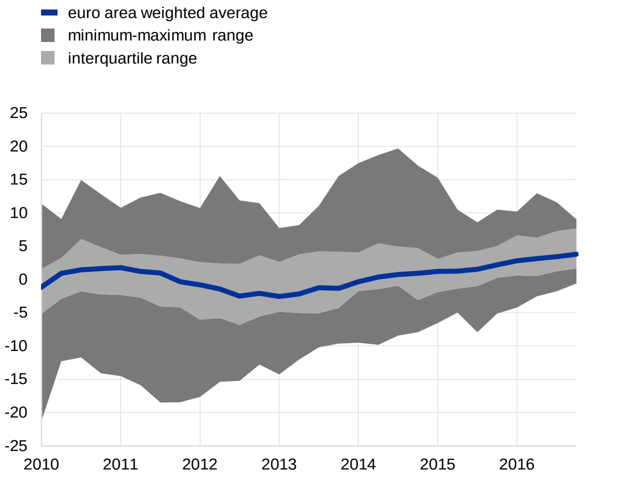
21 Valuation estimates are surrounded by a high degree of uncertainty and their interpretation may be complicated at the country level given national specificities like fiscal treatment or structural factors (e.g. tenure status). In particular, commercial property valuation measures together with other volume and price-based indicators 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 1.31

Continued upturn in residential property markets amid a narrowing dispersion across countries

Dispersion of nominal house price growth in the euro area

(Q1 2010 – Q4 2016; annual percentage changes)



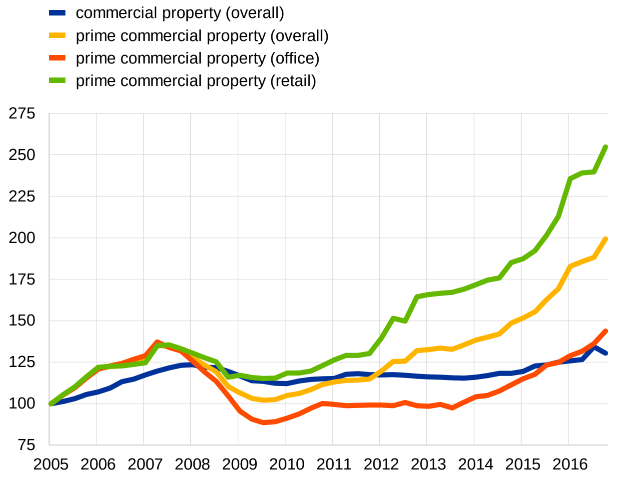
Sources: Eurostat and ECB calculations.

Chart 1.32

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

Commercial property price indices in the euro area

(Q1 2005 – Q4 2016; index: Q1 2005 = 100)



Sources: Jones Lang Lasalle and experimental ECB estimates based on MSCI and national data.
Notes: Retail establishments include inter alia restaurants, shopping centres and hotels. The euro area aggregate comprises Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

Positive momentum in housing markets bodes well for the real economy. Against the backdrop of the ongoing recovery in residential real estate markets, housing investment and construction value added have bottomed out and started to increase slightly more recently, even if they are still some 20 percentage points below their pre-crisis levels (see **Chart 1.33**). That said, the situation across countries is fairly heterogeneous, with housing investment already having reached or even exceeded pre-crisis levels in some countries (e.g. Austria and Germany[22]) which did not exhibit a pronounced housing boom/bust cycle during the past ten years and remaining well below such levels in others. Looking ahead, the factors affecting both the demand and the supply side seem to be supportive of continued growth in residential investment. In line with the unfolding recovery in overall economic activity and employment, the underlying momentum in housing markets may also become a supportive factor for private consumption via wealth and collateral effects. Supply-side conditions are also expected to improve further, as indicated by rising confidence in the construction sector and the increasing number of building permits granted (see **Chart 1.33**), which should help mitigate upward price pressures. Despite some recent mild increase in construction costs on the back of higher labour input costs, cost-push pressures are not yet evident from the construction cost data and the low-cost environment in housing construction may be a supportive factor for construction activity.

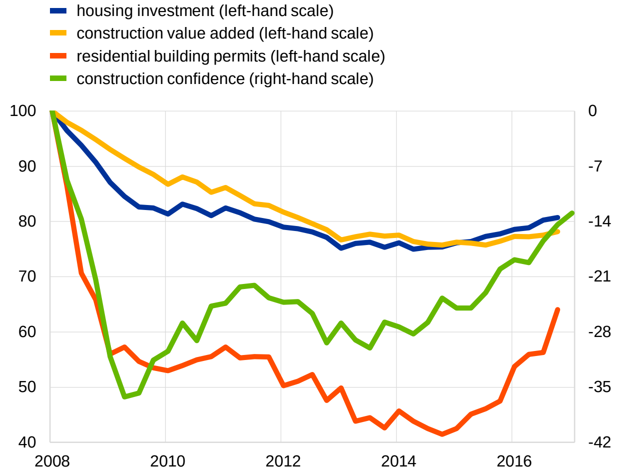
22 In these countries, levels of gross fixed capital formation in dwellings as a percentage of GDP prior to the crisis were relatively low after a strong decline between 1996 and 2005.

Chart 1.33

The upturn in euro area residential property markets is reflected in rising investment and confidence

Housing investment, construction confidence, value added in construction and residential building permits in the euro area

(Q1 2008 – Q1 2017; left-hand scale: index: Q1 2008 = 100; right-hand scale: percentage balances)



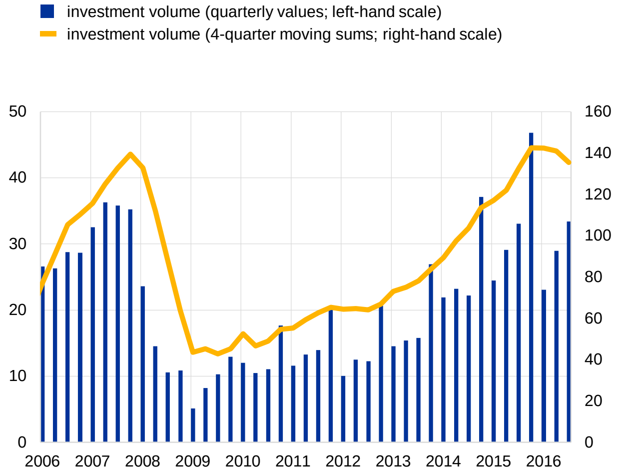
Sources: European Commission and ECB.

Chart 1.34

Commercial property investment has remained strong, but levelled off somewhat from the peak seen in 2015

Commercial property investment volumes in the euro area

(Q1 2006 – Q3 2016; € billions)



Sources: Cushman and Wakefield and ECB calculations.
Note: The euro area countries covered are Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

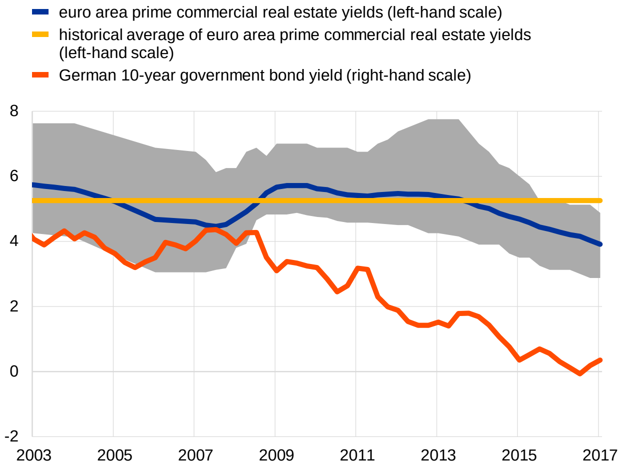
Investment activity in euro area commercial property markets has remained robust, thus continuing to compress yields. Despite some moderation in transaction volumes in 2016 (see **Chart 1.34**) on account of a more cautious stance of investors in anticipation of and following the UK referendum, investment volumes in commercial property markets were just short of the highs seen in 2015. Strong demand, mainly by non-European investors, is compressing prime commercial property yields (see **Chart 1.35**), raising concerns about the potential implications of a rise in long-term interest rates for price dynamics in this market. In fact, the spread between commercial real estate yields and the risk-free rate (proxied by the ten-year German benchmark government bond yield) – which is a reflection of the risk premia attached to commercial real estate as an asset class – has widened markedly since 2008 despite the low absolute level of commercial real estate yields. That said, yield compression in core euro area commercial property markets is increasingly driving property investors towards the non-prime segment and non-core countries. It is noteworthy that the turbulence in the UK commercial property fund sector has not spilled over to euro area commercial property markets, not least given the relatively low importance of real estate funds as an asset class and their concentration in only a few euro area countries (see **Chart 1.36**).

Chart 1.35

Returns on prime commercial property have dropped to record lows amid continued signs of a search for yield

Euro area prime commercial real estate yields and the ten-year German benchmark government bond yield

(Q1 2003 – Q1 2017; percentages per annum)



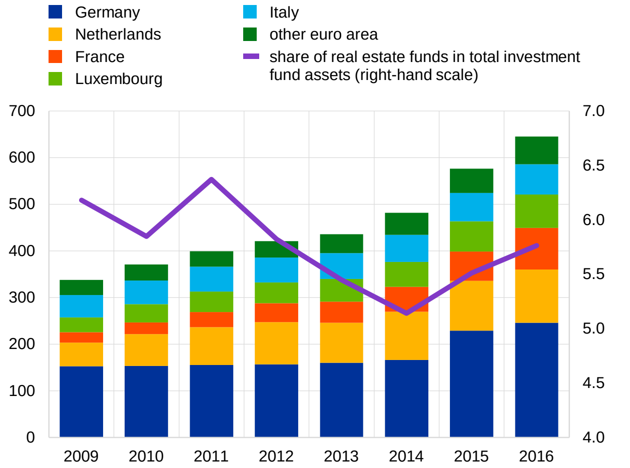
Sources: Bloomberg, Jones Lang Lasalle and ECB calculations.
Notes: The grey area represents the minimum-maximum range across euro area countries. The euro area countries covered are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

Chart 1.36

The relative importance of real estate funds as an asset class is low, with strong concentration in a few euro area countries

Total assets held by real estate funds in the euro area

(2009-16; € billions, percentages)



Sources: ECB and ECB calculations.

The underlying momentum in euro area property markets is underpinned by favourable financing conditions. Alongside the ongoing strengthening of labour market conditions and the related increase in household income, the housing market recovery is also supported by favourable credit conditions. In fact, banks have eased overall credit standards for loans to households for house purchase, following the considerable tightening seen in the aftermath of the global financial and the euro area sovereign debt crises. Easing credit standards together with higher loan demand on the part of households amid lower interest rates on loans for house purchase and rising income have likely contributed to the pick-up in new lending to households for house purchase (see **Chart 1.37**). That said, there are few signs that the ongoing recovery of euro area residential property markets might translate into broad-based rapid housing loan growth in the euro area, even though in some countries price and credit developments may warrant closer monitoring in the context of the current low-yield environment. Regarding commercial property, price increases in countries which are currently experiencing more buoyant developments appear to be driven more by direct investment by institutional investors and funds than bank financing. In principle, this should reduce the potential for direct negative spillovers to the banking system stemming from an abrupt correction in commercial real estate valuations.

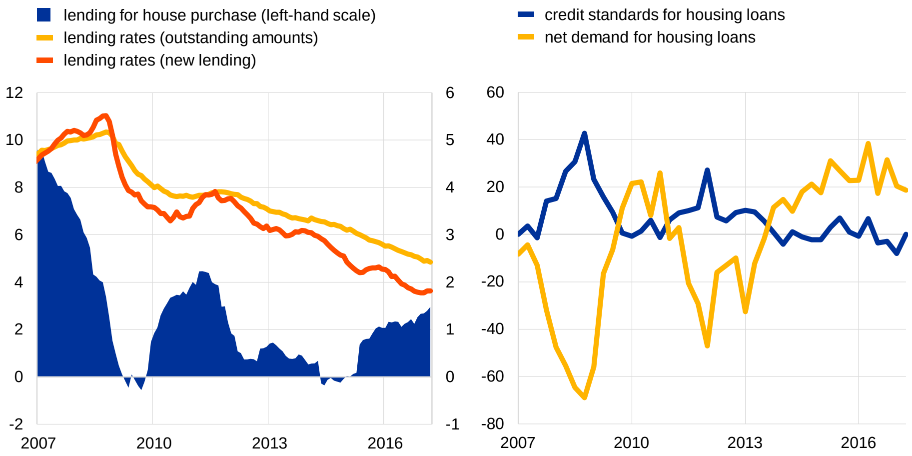
An adverse economic or financial shock may challenge the sustainability of the recovery. In particular, an adverse shock to economic growth prospects and/or financing conditions would test the debt servicing capacity of households and commercial property investors, and may represent a risk for banks in countries with high property-related exposures. At the same time, large legacy real estate exposures may render the banking sector vulnerable to potential price corrections even in the absence of more buoyant lending dynamics.

Chart 1.37

New loans to households for house purchase are picking up in a low interest rate environment amid favourable supply and demand conditions

Annual growth of loans to households for house purchase, interest rates for loans to households for house purchase, as well as credit standards and net demand for loans for house purchase in the euro area

(Jan. 2007 – Mar. 2017; annual percentage changes, annual percentages, weighted net percentages)



Sources: ECB and ECB calculations.
Note: Credit standards refer to the net percentage of banks contributing to a tightening of credit standards, while credit demand indicates the net percentage of banks reporting a positive contribution to demand.

Macroprudential policies help alleviate possible real estate-related risks to financial stability at the country level. Based on a broad set of metrics, some countries appear to be more exposed to property-related risks. In some countries, such as Austria, Malta, Luxembourg[23] and Slovakia, the housing cycle is in a phase of robust expansion, while in other countries, like Finland and the Netherlands, elevated levels of household indebtedness and large real estate exposures of banks may amplify adverse shocks. In view of this, a number of countries have already introduced macroprudential measures to avoid a build-up of vulnerabilities. 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 if needed. That said, the Governing Council of the ECB together with the European Systemic Risk Board published a set of country-specific warnings in late 2016, highlighting the potential for rising imbalances in residential real estate markets and the related need to take additional targeted macroprudential action in some countries.

[23] In Luxembourg, real estate developments also reflect a number of structural factors, including supply constraints.

Box 3

Residential real estate prices in capital cities: a review of trends

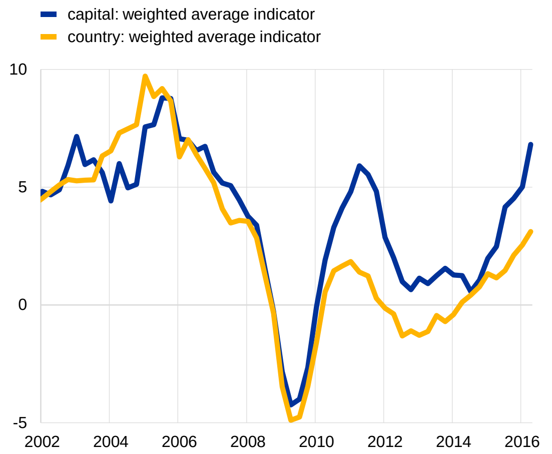
Heterogeneous regional developments in housing markets may be a cause for concern from a financial stability perspective. Although diverging developments at the regional level could be justified by fundamentals, such as differences in regional income, employment, population dynamics and amenities, they could also signal excessive exuberance of house prices in certain areas, for example due to the strong presence of foreign buyers. In this case, regional developments may spill over to adjacent locations or the entire country via "ripple effects", with regional price developments potentially ending up leading the housing cycle at the country level. Thus, a close monitoring of regional residential real estate price trends seems warranted, as they may provide an early indication of a potential build-up of vulnerabilities in housing markets at the national level. Moreover, exuberant house price developments in certain regions could, in principle, threaten the stability of financial institutions with mortgage exposures concentrated in those regions. This is especially the case in the context of a low interest rate environment spurring a potential search for yield.

Chart A

Stronger house price increases in capital cities have been observed since 2010…

House price changes in euro area capital cities and at euro area aggregate level

(Q1 2002 – Q2 2016; annual percentage changes)



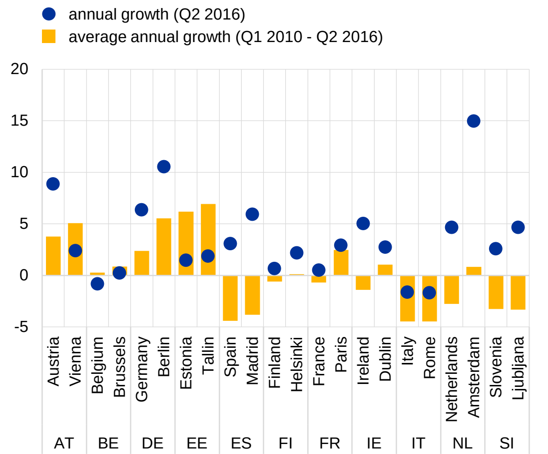
Sources: ECB calculations based on BIS and national data.
Notes: The composition of the sample changes over time and includes Germany, France, Italy, Spain, the Netherlands, Belgium, Austria, Ireland (from 2005), Estonia (from 2003), Slovenia (from 2010) and Finland (from 2010). The euro area series are a weighted average based on 2014 GDP weights.

Chart B

…amid a considerable degree of cross-country heterogeneity

Real residential property price changes across selected euro area countries and capital cities

(Q1 2010 – Q2 2016; annual percentage changes)



Sources: ECB calculations based on BIS and national data.
Note: Country-level data include capital cities.

Since 2010, residential property prices in capital cities have grown more strongly than the respective country averages across the euro area[24] (see **Chart A**). The aggregate euro area picture masks not only diverging developments at the country level, but also heterogeneous trends at the regional level. In fact, in recent years, real house prices have tended to grow faster or decline

[24] Data on house prices in capital cities were collected for 11 euro area countries (Austria, Belgium, Estonia, Finland, France, Germany, Ireland, Italy, Spain, Slovenia and the Netherlands) and aggregated at the euro area level.

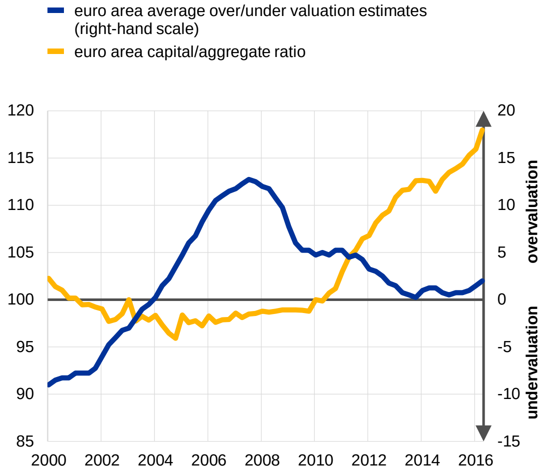
less in capital cities than at the national level – a development observed, in particular, in Austria, Germany, France, the Netherlands and, to a lesser extent, in Estonia and Ireland (see **Chart B**). This divergence was not apparent during the upturn in the early 2000s, when prices in capital cities moved broadly in line with the national aggregates.

Chart C

Higher prices in capital cities are not associated with overvaluation in the euro area

Ratio of house prices in capital cities to national aggregate and euro area over/undervaluation estimates

(Q1 2000 – Q2 2016; left-hand scale: index: Q1 2010 =100; right-hand scale: percentage points)



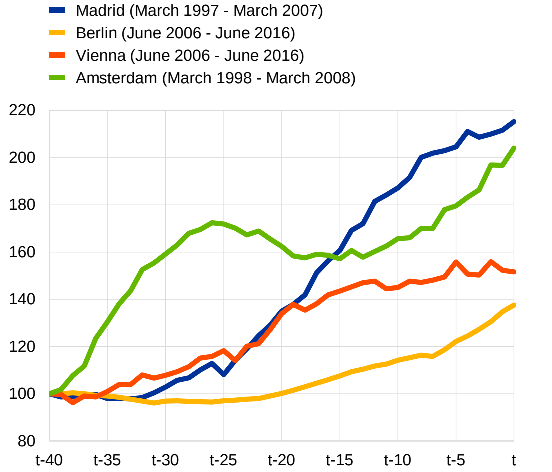
Sources: ECB calculations based on BIS and national data.
Notes: Over/undervaluation estimates are deviations from valuation estimates for aggregate developments, which are an average of four indicators: house price-to-income and house price-to-rent ratios, an inverted demand model and an asset pricing model. For further details, see Box 3, *Financial Stability Review*, ECB, June 2011, and Box 3, *Financial Stability Review*, ECB, November 2015.

Chart D

Current price increases in selected cities appear more moderate than seen in previous episodes of house price exuberance

Real house prices in selected capitals in the 10 years preceding a house price correction (Amsterdam and Madrid) and in the last 10 years (Berlin and Vienna)

(index: t-40 quarters = 100)



Sources: ECB calculations based on BIS and national data.

For the euro area as a whole, stronger price increases in capital cities do not generally indicate a potential build-up of vulnerabilities.[25] Higher house price increases at the regional level could, however, spill over to an entire country and thus possibly fuel overvaluation pressures. However, for the euro area as a whole, stronger price increases in capital cities observed since the beginning of 2010 have not translated into sizeable overvaluations (see **Chart C**). Still, developments are rather heterogeneous across countries and caution is warranted when interpreting results, given the uncertainties surrounding such estimates and prevalent data limitations.[26] Moreover, in the context of recent strong price increases in large cities, an analysis of co-movements in house prices across and within countries might shed light on whether prices in capital cities are becoming more closely linked than in the past across the euro area. While such a

25 This finding is confirmed by Granger-causality tests showing that in most countries there is no systematic pattern of the capital city price to aggregate country price ratio leading valuation estimates.

26 In particular, partial data coverage – dictating the choice of the sample and the length of the time series – and limited data comparability across countries are important caveats. In addition, house price developments in the capital city of a country may not always be representative of those in other big cities in the same country.

link might be consistent with stronger integration within the euro area, it could also indicate that prices in capital cities are increasingly being driven by common euro area factors rather than domestic factors, which would be consistent with a stronger influence of international investors. In this context, prices in large cities might decouple from local fundamentals. Preliminary results from this investigation – applying a time-varying loading factor model – provide no clear evidence of convergence across or within countries. It may also be noted that, at present, price increases in selected capital cities with estimated overvaluations, including Berlin and Vienna,[27] appear more moderate than developments previously experienced in capitals where house price exuberance was followed by a correction, such as Madrid and Amsterdam (see **Chart D**).

All in all, a close monitoring of regional house price developments is important from a financial stability perspective. Recent price trends in selected euro area capital cities indicate stronger price dynamics than for the national aggregate, while being more moderate than those seen in earlier episodes of regional house price exuberance. Still, regional house price developments could pose challenges in the medium term when accompanied by a strong growth of mortgage loan financing amid weaker lending standards. Thus, developments should be carefully monitored. That said, macroprudential instruments (in particular those under national competence) geared towards mitigating potential financial stability risks from banks' real estate exposures can, in principle, also be used at the regional level, thus helping to mitigate possible risks to financial stability. In addition, by construction, borrower-based instruments like DSTI and DTI when activated at the national level are likely to be more binding in regions where housing price and credit developments strongly outpace household income growth than in regions where such developments stay more in line with each other.

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[27] See *Monthly Report*, Deutsche Bundesbank, February 2017, which suggests overvaluation in German towns and cities (in particular the seven biggest ones), and Schneider, M., Wagner, K. and Waschiczek, W., "OeNB property market monitor", Oesterreichische Nationalbank, October 2016.