

Overview

Euro area systemic stress has remained relatively low over the past six months, despite bouts of market turbulence.

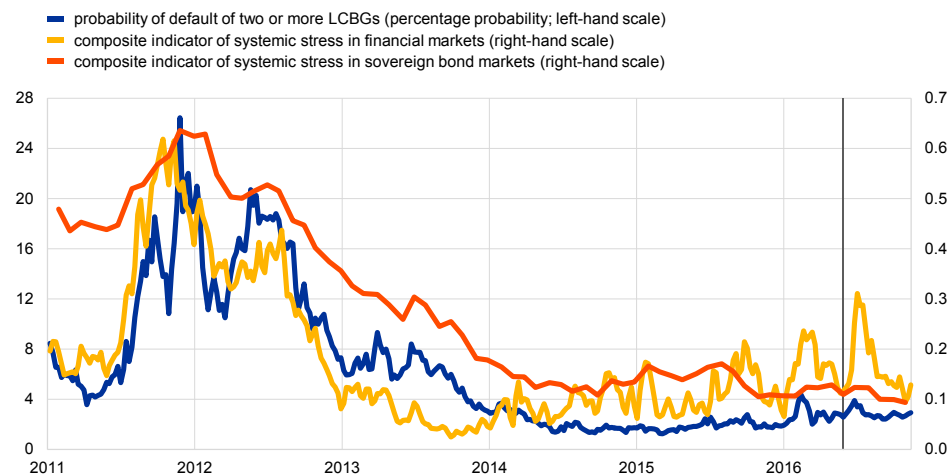
Since mid-2013, both the volatility and the level of the euro area composite indicator of systemic stress have gradually edged upwards (see [Box 1](#)). The ratcheting-up of this indicator has been associated with a range of local and global stress events and has continued over the past six months. Factors that pushed it up include higher political uncertainty following the outcomes of the UK referendum on EU membership and the US election as well as market concerns about euro area banks' longer-term profitability prospects. At the same time, continued accommodative monetary policy in advanced economies and abating market concerns about the possibility of a sharp slowdown in China have dampened spikes in systemic stress. All in all, despite relatively volatile global financial markets, bank and sovereign systemic stress indicators for the euro area have remained fairly stable at low levels (see [Chart 1](#)).

Chart 1

Measures of euro area systemic stress remain contained despite increasingly volatile global financial markets

Composite indicators of systemic stress in financial markets and sovereign bond markets, and the probability of default of two or more banking groups

(Jan. 2011 – Nov. 2016; the vertical line represents the publication of the May FSR on 24 May)



Sources: Bloomberg and ECB calculations.

Notes: "Probability of default of two or more LCBGs" refers to the probability of simultaneous defaults in the sample of 15 large and complex banking groups (LCBGs) over a one-year horizon.

Mirroring developments in global markets, euro area asset prices have witnessed a number of sharp corrections in recent years.

This pattern continued over the past six months, as demonstrated, in particular, by higher asset price volatility following the outcomes of the UK referendum and the US election (see [Chart 2](#)). Most of the market segments affected by the turbulence following the UK referendum quickly recovered the bulk of their losses, not least given a resolute policy response by the Bank of England. Market movements after the US election indicate a rotation from bonds to equities. Bond valuations declined by €1 trillion

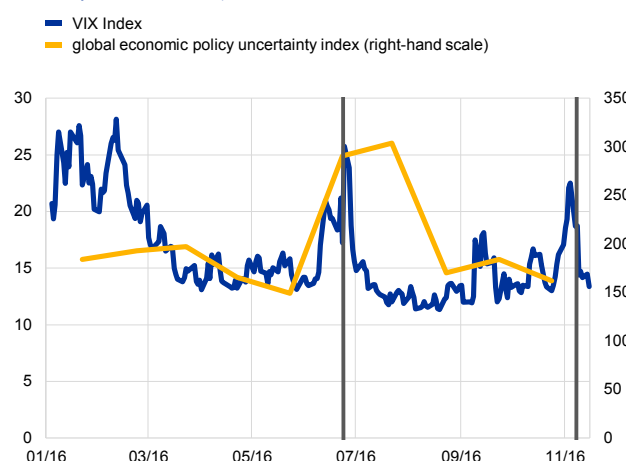
worldwide in the first week after the election, with European markets also being affected, albeit to a smaller degree than US markets. It is uncertain whether these developments will set a trend for the future. However, since the start of the year, corporate bond yields have remained at low levels, inter alia supported by ECB measures undertaken to combat low consumer price inflation. At the same time, euro area equity markets have remained volatile, particularly for cyclical sectors. The declines in euro area banks' stock prices have been sizeable year-to-date as a result of shorter periods of sharp repricing. All in all, as risk premia at the global level remain compressed, more volatility in the near future is likely and the potential for an abrupt reversal remains significant amid heightened political uncertainty around the globe and underlying emerging market vulnerabilities.

Chart 2

Policy uncertainty has increasingly affected global market sentiment in 2016

Global economic policy uncertainty and the VIX Index

(Jan. 2016 – Nov. 2016; the vertical lines mark the dates of the UK referendum in June 2016 and the US election in November 2016; daily observations for the VIX Index and monthly observations for the policy uncertainty index; the last observation for the policy uncertainty index is Oct. 2016)



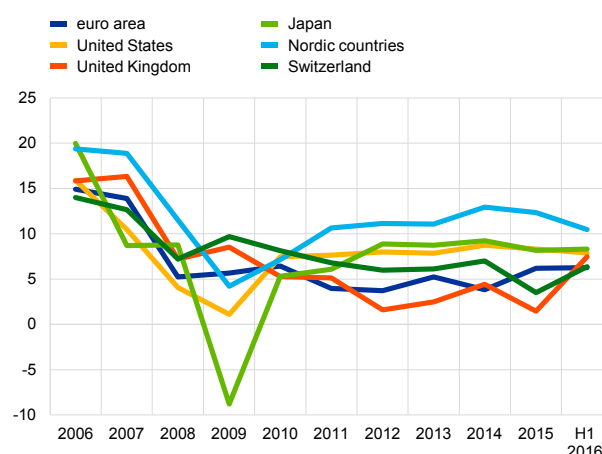
Sources: Bloomberg, www.policyuncertainty.com, Haver Analytics and ECB calculations.

Chart 3

Weak bank profitability in advanced economies during and after the global financial crisis

Median bank return on equity in major advanced economic regions

(2006-16, annual percentage)



Sources: SNL and ECB calculations.








Note: Data for 2016 refer to the first half of the year.

The euro area banking sector remains vulnerable, but proved to be resilient to recent market stress. Subdued economic growth and the associated low interest rate environment have dampened banking sector profitability prospects in the euro area and other advanced economies (see [Chart 3](#)). In the euro area, volatile stock market developments over the past six months contributed to an increase in banks' cost of equity which may constrain banks' ability to support the real economy via higher lending volumes. Furthermore, banks' capacity to organically generate capital is constrained by low profitability prospects in a still subdued nominal growth environment. In October and early November, a steeper yield curve and growing market expectations that global bank regulation will end up less tight than previously expected contributed to an increase in bank stock prices. The main structural challenges for bank profitability continue to be related to the large stock of non-performing loans in a number of countries, incomplete business model adjustments

and overcapacity in some euro area banking sectors. Going forward, the higher cost of external financing coupled with the prospect of limited internal capital-generating capacity increase the likelihood that an adverse feedback loop could emerge between weak bank profitability and the sluggish economic recovery.

Debt sustainability concerns remain for the sovereign and non-financial sectors. Euro area sovereign stress has remained contained amid the ongoing economic recovery, favourable sovereign financing conditions and the steady improvement in fiscal balances, but policy decisions at both the national and EU levels may lead to weakened fiscal and structural reform efforts. This, in turn, could weigh on both public finances and economic growth.

Table 1
Key risks to euro area financial stability

		Current level (colour) and recent change (arrow)*
	pronounced systemic risk	
	medium-level systemic risk	
	potential systemic risk	
Global risk repricing leading to financial contagion, triggered by heightened political uncertainty in advanced economies and continued fragilities in emerging markets		
Adverse feedback loop between weak bank profitability and low nominal growth, amid challenges in addressing high levels of non-performing loans in some countries		
Re-emerging sovereign and non-financial private sector debt sustainability concerns in a low nominal growth environment, if political uncertainty leads to stalling reforms at the national and European levels		
Prospective stress in the investment fund sector amplifying liquidity risks and spillovers to the broader financial system		

* The colour indicates the cumulated level of risk, which is a combination of the probability of materialisation and an estimate of the likely systemic impact of the identified risk over the next 24 months, based on the judgement of the ECB's staff. The arrows indicate whether the risk has increased since the previous FSR.

While banks have continued to de-risk, the euro area investment fund sector has been characterised by higher risk-taking. As financial risk has been migrating across financial sectors, growth in the investment fund sector (driven by both inflows and rising valuations) since the global financial crisis has been notable. Vulnerabilities in the way that funds are allocated and managed were forcefully demonstrated earlier this year when uncertainty over asset valuations in UK commercial real estate markets led to a run on some open-end property funds following the referendum result. The incident revealed the inherent fragility of the open-end fund model. That said, euro area-domiciled funds have remained resilient overall despite a trend of outflows observed in equity funds since the start of this year. The sector's increasing role in capital markets is consistent with the capital markets union (CMU) initiative, providing valuable diversification benefits for the funding of the real

economy. At the same time, the rapid growth in this sector over recent years needs to be met with a commensurate increase in monitoring. Many of these funds are also exposed to liquidity mismatches. This characteristic increases the potential for the investment fund sector to amplify market-wide shocks.

In the prevailing environment, four main risks to euro area financial stability over the next two years can be identified (see Table 1). As they are intertwined, if they were to materialise, they would have the potential to be mutually reinforcing. A common trigger for all of these risks could be weaker nominal growth than currently expected across the euro area.

Risk 1: Global risk repricing leading to financial contagion, triggered by heightened political uncertainty in advanced economies and continued fragilities in emerging markets

Most global asset prices have continued to drift higher, only temporarily interrupted by occasional bouts of elevated financial stress (see Chart 4).

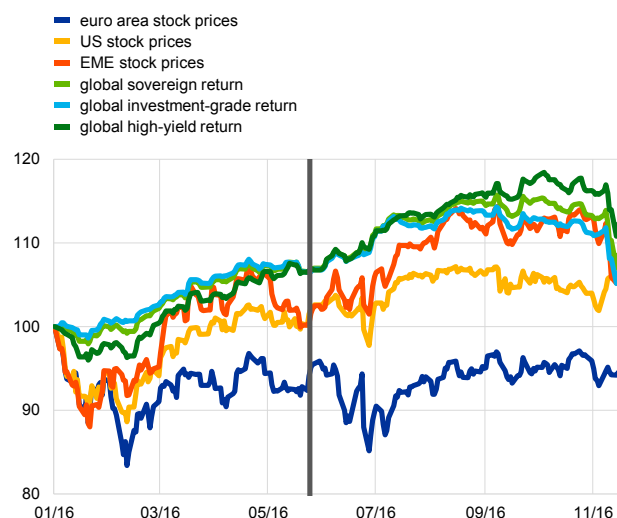
Global bond yields, in particular, have remained low in the past six months, benefiting from accommodative monetary policies and less anxiety about the likelihood of a sharp economic slowdown in emerging economies. In the latter part of the review period, bond yields in advanced economies increased somewhat against the backdrop of expected fiscal stimulus in the United States. In an environment of overall subdued yields on debt instruments, investors have gradually been taking on higher credit and duration risk in their portfolios. This has been the case not only for investment-grade bonds, but also riskier segments of global fixed income markets, which have benefited from the recovery in oil and other commodity prices from the very low levels recorded in early 2016.

Chart 4

Prices of most global bonds and stocks edged up over the past six months

Global stock and bond market developments

(Jan. 2016 – Nov. 2016; all indices are indexed to 100 on 1 Jan. 2016; the vertical line represents the publication of the May FSR on 24 May)



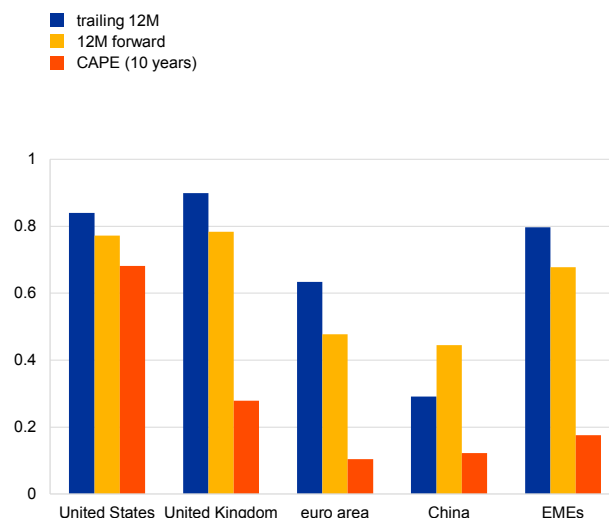
Sources: Thomson Reuters Datastream, JP Morgan and ECB calculations.
Notes: The stock and bond indices are computed by Thomson Reuters Datastream and JP Morgan, respectively. All global bond indices are in US dollars (total return indices). The euro area stock market index is denominated in euro and the US and emerging market economy (EME) stock market indices are in US dollars.

Chart 5

Signs of inflated equity price valuations in some regions

Percentiles for the P/E ratio according to three different methods

(valuations as of October 2016 compared with history, current valuations normalised to a 0-1 scale)



Source: Thomson Reuters Datastream.
Note: "Trailing 12M" is a P/E ratio based on the last year's reported earnings (sample starts in 1985, for EMEs in 1995), "12M forward" is a P/E ratio based on earnings forecasts a year ahead (sample starts in 1990) and the "CAPE (10 years)" is a cyclically adjusted P/E ratio with a ten-year moving average of reported earnings in the denominator (sample starts in 1985, for EMEs in 2005).

The prices in some equity markets are showing signs of stretched valuations.

Valuation measures – including the cyclically adjusted price/earnings ratio (CAPE), arguably the best indicator of valuation based on earnings – are in some regions hovering at levels which, in the past, have been harbingers of impending large corrections. In the United States, three common price/earnings metrics are elevated

(see [Chart 5](#)). Somewhat stretched valuations in certain equity markets may be linked to the low yields offered on debt instruments. In fact, some portfolio flows into equities may stem from the growing negative gap between the yields on government bonds and dividend yields on equities (see [Chart 2.2](#) in Section 2).

Higher political uncertainty has contributed to periods of elevated asset price volatility. The improved market sentiment in the weeks after the UK referendum benefited from a timely and forceful response by the Bank of England, which cut the bank rate and introduced a package of measures designed to provide additional monetary stimulus. The implications of the recent US election for euro area financial stability are highly uncertain at the current juncture. This notwithstanding, economic policies in the United States will likely become more inward-oriented, while the fiscal deficit may grow as a result of tax reductions and increased infrastructure and defence spending. In such a scenario, the euro area economy may be impacted via trade channels and by possible spillover effects from higher interest and inflation rate expectations in the United States.

The market reactions to recent political events were, in many ways, illustrative of a broader pattern in global financial markets over the last years – namely, bouts of elevated market volatility followed by quick corrections in asset prices. As such a pattern takes hold, there are risks that market participants may become complacent as they see a lower likelihood of prolonged asset price corrections. Such complacency could translate into undue risk-taking by investors and potentially contribute to a further stretch in asset price valuations (see [Box 3](#)). More broadly, low financial market volatility may also unearth vulnerabilities stemming from financial institutions' risk management given their widespread use of various value-at-risk (VaR) methods. According to this metric, low financial market volatility reduces the expected loss over a given period, which may further spur risk-taking strategies.

Euro area bond markets have largely mirrored global fixed income markets, while sector-specific concerns have come to weigh on euro area equity markets. Both euro area government and corporate bond yields have remained at low levels in 2016, reflecting market supply and demand, including Eurosystem bond purchases in both market segments. Valuations of corporate bonds have increased, mainly in the investment-grade segments directly influenced by ECB purchases, but also in the high-yield segments. The gyrations in euro area government bond yields in 2016 have mainly been driven by the term premium component, which continues to hover in negative territory. The low level of term premia demanded on euro area bonds requires close monitoring and investors should maintain sufficient buffers to withstand any prospective reversal of premia over the medium term. Euro area equity markets, by contrast, remained exposed to occasional temporary shocks. Sector-specific market concerns related to euro area banks led to elevated stock market volatility during the summer months.

Risks of further asset price corrections remain high and may be amplified by high correlations between asset classes. Euro area and global bonds have been trading at low yield levels. Owing to the non-linear relationship between prices and interest rates (i.e. bond convexity), there is higher price sensitivity when interest

rates are very low or negative. As a result, losses for investors highly exposed to low-yielding bonds with long maturities can be large even for relatively limited reversals of risk premia (see [Chart 6](#)). Furthermore, the possibility of herding behaviour (i.e. more investors chasing the same types of assets) has increased gradually, as investors are finding it more difficult to find assets generating sufficient returns. Increased correlations across asset classes provide indications that one-directional moves in asset classes have become more common in recent years (see [Chart 7](#)). Should market sentiment deteriorate, the high correlations between asset classes may act as an amplifier and, thereby, lead to an even stronger correction of asset prices.

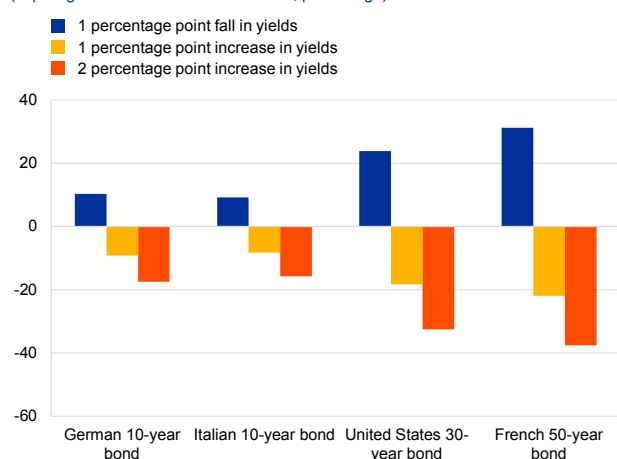
Mirroring these financial market developments, property prices have continued to rise in the euro area. Despite the continued increases, residential property price valuations remain generally modest in the euro area and are broadly in line with those suggested by fundamentals for the euro area as a whole. The situation is, however, heterogeneous across and even within euro area countries. Robust price increases, accelerating mortgage lending growth and emerging signs of overvaluation have been observed for residential property in some countries. Furthermore, valuations of euro area prime commercial property appear to be high amid strong price increases in recent quarters, though data limitations render such estimates highly uncertain.

Chart 6

Capital losses for low-yielding/high-duration portfolios could be substantial if sentiment were to deteriorate

Capital gains/losses following 1 and 2 percentage point changes in bond yields

(capital gains/losses as at 15 November, percentage)



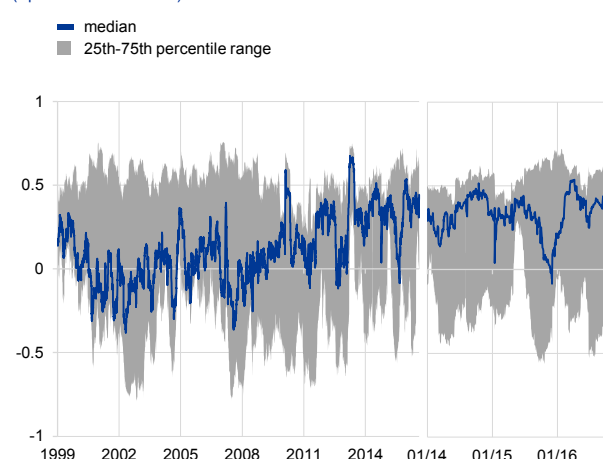
Source: Bloomberg.

Chart 7

Elevated correlations between asset classes may amplify potential price corrections

Distribution of European asset price correlations across asset classes

(Apr. 1999 – Nov. 2016)



Sources: Bloomberg, Merrill Lynch, ECB and ECB calculations.

Notes: The chart shows the median and interquartile range for the correlations across major European fixed income and equity indices. The indices include high-yield bonds, investment-grade bonds and government bonds. The right part of the chart zooms in on the developments since January 2014.

Macroprudential policies are best placed to tackle challenges that could pose threats to financial stability, not least given their country and sector-specific characteristics. Such policies can bolster systemic resilience and curb financial excesses that may occur, thereby allowing monetary policy to focus on its primary

objective of maintaining price stability – also to the benefit of financial stability. Determining the need for macroprudential action targeting the residential real estate market involves the review of a broad set of indicators including prices and valuation indicators, trends in mortgage credit growth, household indebtedness, the economic outlook and banks' exposure to real estate markets (see [Box 2](#)).

Risk 2: Adverse feedback loop between weak bank profitability and low nominal growth, amid challenges in addressing high levels of non-performing loans in some countries

The profitability of euro area banks has remained low but broadly stable, despite continued challenges stemming from the weak growth and low interest rate environment. Euro area banks' return on equity (ROE) remained broadly stable in the first half of 2016 (the aggregate ROE of euro area significant institutions stood at 5.5% in the first half of 2016, slightly below the 6.5% recorded one year earlier).¹ Banks thus managed to weather the headwinds stemming from the continued weak economic recovery and the low interest rate environment. One of the boxes in this issue of the FSR assesses how the current low interest rate environment (stemming from monetary policy measures) has affected bank profitability (see [Box 4](#)). On the one hand, accommodative monetary policy can lead to lower net interest income amid a flattening of the yield curve. Indeed, a flatter yield curve is likely to translate into lower unit interest margins, particularly since deposit rates have little room to move lower. Furthermore, negative deposit facility rates impose a direct cost on banks' holdings of excess liquidity. On the other hand, these effects are at least partly offset by the positive effects of policy measures on macroeconomic conditions, which support intermediation activity and credit quality. Overall, the empirical evidence laid out in the box suggests that recent monetary policy measures have so far had a neutral impact on bank profitability, as the effects on different components of bank profitability have largely offset each other. The increase in euro area bond yields in October and November has contributed to a steepening of the yield curve. If sustained, this may provide some support to banks' net interest income going forward.

Profitability concerns have dampened banks' stock market valuations.

Repeated sharp but short-lived corrections in euro area bank stock prices have continued to test the resilience of the financial sector in recent months. Several factors contributed to the volatility of euro area bank stock prices, but the predominant factor continued to be market concerns about euro area banks' profitability prospects in a low growth and interest rate environment (see [Chart 8](#)). Furthermore, some price discrimination has been observed across banks, depending on their non-performing loan (NPL) exposures, the perceived degree of business model complexity and litigation costs. All in all, the corrections contributed to dampening euro area bank equity valuations and the bulk of listed banks currently trade at large discounts to the book value of their equity (see [Chart 9](#)). The rebound

¹ Based on a sample of 101 euro area significant institutions (source: ECB).

in bank stock prices and valuations seen in October and early November can partly be attributed to the notion that market analysts became somewhat less concerned that the finalisation of Basel III would lead to a tightening of capital standards.

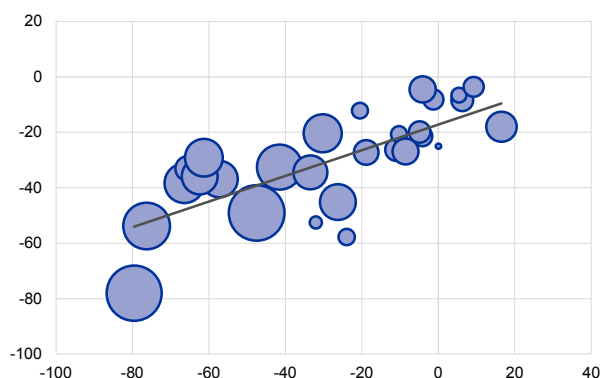
The overall negative outlook for banks has led to a further increase in their cost of equity. Compressed valuations resulted in a slight widening of the negative gap between banks' return on equity and cost of equity. Such a negative gap is not sustainable in the long run since it implies that equity investors in banks require a higher return than the return banks are able to deliver. Over time, this will make it difficult for banks to attract capital and finance growth. This notwithstanding, the financial system has remained resilient to the repeated stock market corrections, not least as banks have significantly strengthened their capital positions in recent years (as also confirmed by the results of the European Banking Authority's 2016 EU-wide stress test). Going forward, banks' cost of equity may benefit from reduced regulatory uncertainty as the revision of the Basel III framework is expected to be completed by the end of the year.

Chart 8

Downward revisions to earnings expectations (in some regions linked to legacy problems) pushed euro area banks' stock prices lower in 2016

Changes in bank stock prices (x-axis) and changes in 2017 net income expectations (y-axis) since January 2016

(annual percentage between 1 Jan. and 15 Nov. 2016)



Sources: Bloomberg and ECB calculations.

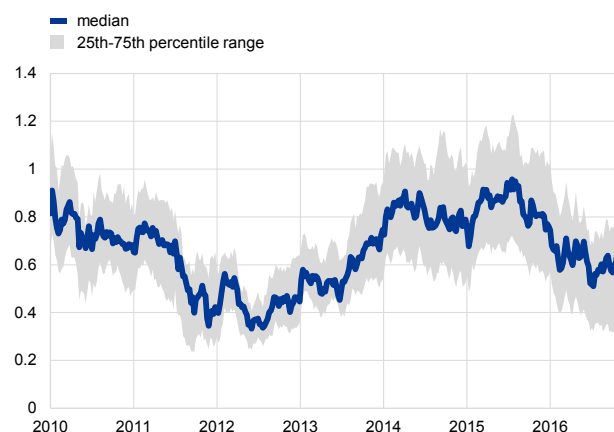
Notes: The sample consists of banks included in the EURO STOXX bank index. The bubble sizes are proportional to non-performing loan ratios in the fourth quarter of 2015.

Chart 9

The underperformance of euro area bank stocks has led to a broad-based drop in banks' valuations

Price-to-book ratios for large listed euro area banks

(Jan. 2010 – Nov. 2016)



Sources: Bloomberg and ECB calculations.

Note: The sample consists of banks included in the EURO STOXX bank index.

Banks' profitability challenges are exacerbated by the large stocks of non-performing loans in some regions. As NPLs do not generate revenue and also consume capital, they can have a significant adverse impact on banks' profitability (see [Chart 8](#)). In addition, the high level of NPLs also has adverse macroeconomic implications as many borrowers remain distressed and overindebted in the absence of viable long-term restructuring solutions, thereby having the potential to suppress credit growth. Progress in reducing the level of NPLs has been slow so far. This is related to institution-specific factors, such as limited operational capacity or the lack of adequate management experience. In addition, there are a number of structural

factors impeding the swift resolution of NPLs, including flawed personal and corporate insolvency laws, inefficient judicial systems, the lack of effective out-of-court workout frameworks, an underdeveloped NPL servicing industry and NPL markets as well as accounting and tax impediments.

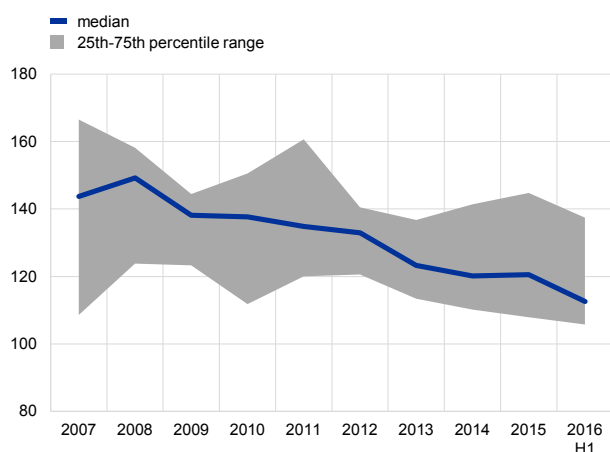
While profitability headwinds stemming from cyclical factors should abate, structural challenges remain and require tackling. Such challenges differ across euro area countries and also depend on banks' business models. In certain regions of the euro area, the banking system is characterised by overcapacity. In these regions, cost-to-income ratios remain high, partly owing to the high number of bank branches. Further bank consolidation and increased efforts to reduce banks' cost bases are needed in these regions.

Chart 10

A gradual return by euro area banks to more stable funding sources has reduced vulnerabilities stemming from abrupt changes in market sentiment

Loan-to-deposit ratios for the euro area

(2007-16, annual median ratio; 2016 refers to H1 data)



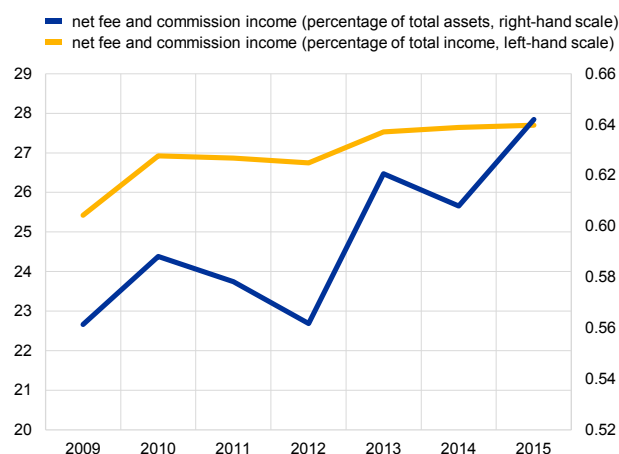
Sources: SNL and ECB calculations.
Note: The sample consists of 37 euro area banks.

Chart 11

A somewhat higher share of fee income in recent years

Euro area banks' net fee and commission income as a percentage of total assets and total income

(2009-15, shares of total income and total assets)



Source: ECB consolidated banking data.

Business model adaptation is needed in the post-global financial crisis environment.

The global financial crisis underlined the need for greater resilience – including more and higher-quality capital. Banks have also been challenged by an operating environment characterised by weak economic growth and record low interest rates. Many have responded by reducing the size of their balance sheets, by building up their capital base and by scaling back riskier activities in favour of core business. In the euro area, this has resulted in a shift from investment bank and wholesale activities towards more traditional retail business. These changes in banks' business models have brought about a decline in euro area banks' loan-to-deposit ratios (see [Chart 10](#)). These ratios are, however, still above those of some of their global peers which is partly related to the fact that euro area non-financial firms predominantly fund themselves via banks, whereas, for instance, in the United States market-based funding is more common. While initiatives such as CMU will

help firms (including small and medium-sized enterprises) to diversify their sources of finance, banks need to play their role in supporting investment and growth, in an environment of improved resilience, which is of benefit to financial stability.

Further income diversification could help to support bank profitability. Over the past few years, a slow trend towards higher net fee and commission income can be observed for euro area banks (see [Chart 11](#)). As net interest income is compressed in a low growth and interest rate environment, some banks may adapt their business models even further towards fee and commission-generating activities. Such a shift could lead to more diversified income sources and help boost banks' capital-generation ability (see [Special Feature C](#)).

Like banks, euro area insurers face headwinds from the low-yield environment amid weak macroeconomic conditions. In particular, due to low discount rates, the low-yield environment implies an elevated value of liabilities. At the same time, investment income has declined in the first half of 2016 since maturing investments have been gradually reinvested at lower rates. In addition, insurers face significant challenges in underwriting new business in a weak economic environment. To boost yields from investment, the sector has continued to gradually reallocate its portfolio towards more risky and illiquid assets, which makes it more vulnerable to adverse market shocks. However, the sector has proved resilient to recent bouts of market volatility. By and large, the profitability and solvency positions of most large euro area insurers remain solid so far, but the outlook is weakening, particularly for life insurers.

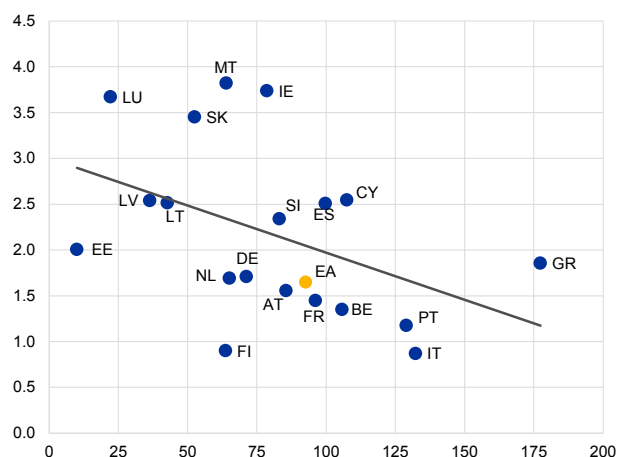
From a policy perspective, the most pressing issue for euro area financial institutions remains the high level of NPLs, which needs to be addressed. The resolution of systemic NPL problems will take time and requires a comprehensive strategy, involving coordination of all relevant stakeholders. Such a comprehensive strategy also includes a large role for microprudential supervision in addressing NPL problems. Various task forces have been set up to focus on the NPL issue from its different angles (micro- and macroprudential) and should yield insights into the design of the best response and long-term strategy for those banks with high NPLs. [Special Feature B](#) of this Review discusses the impediments to the functioning of a market for NPL sales. It highlights indicators of market failure and distinguishes between supply and demand factors that impede market functioning.

Risk 3: Re-emerging sovereign and non-financial private sector debt sustainability concerns in a low nominal growth environment, if political uncertainty leads to stalling reforms at the national and European levels

Gauges of euro area sovereign bond market stress remain contained. The composite indicator of systemic stress in euro area sovereign bond markets has remained fairly stable, hovering around levels seen before the global financial crisis in 2008. The ECB's public sector purchase programme, coupled with indications that headline fiscal balances across the euro area are set to improve further on the back

Chart 12**High debt levels may weigh on economic growth prospects****Gross general government debt in 2015 and average GDP growth forecasts for 2016-18**

(2015, 2016-18; percentage change, percentage of GDP; x-axis: gross general government debt; y-axis: average GDP growth forecasts for 2016-18)



Sources: European Commission (AMECO) and ECB calculations.

of the ongoing (albeit subdued) economic recovery and the low interest rate environment, have chiefly contributed to the benign sovereign stress conditions. Improved fiscal balances are expected to continue to reduce government indebtedness, albeit from elevated levels. After starting a declining trend in 2015, the aggregate euro area government debt-to-GDP ratio is projected by the European Commission to stand at close to 90% of GDP in 2017, while debt levels vary considerably across countries. A key challenge for government debt sustainability relates to a prolonged period of low nominal growth (see [Chart 12](#)). In this context, a steadfast effort to continue with structural and fiscal reforms with a view to enhancing the long-term growth potential of euro area economies appears warranted. In the short-to-medium term, targeted and prudent measures, where possible, may additionally help to boost economic growth. That said, political uncertainty in several countries has increased. In particular, less reform-oriented and more domestically focused policy agendas may lead to delays in much-

needed fiscal and structural reforms and may reignite pressures on more vulnerable sovereigns.

Risks stemming from elevated debt levels are also material for the non-financial private sector.

The indebtedness of the euro area non-financial corporate sector remains high by both historical and international standards. Firms' leverage has fallen somewhat in recent years, but progress has been slow despite historically low financing costs, which are supporting debt servicing capacity. Indebtedness of the household sector is less of an issue at the aggregate euro area level by international standards, although the situation remains highly heterogeneous across euro area countries. Households in countries with high indebtedness coupled with a buoyant residential property market may be particularly vulnerable to external shocks, such as lower than expected economic growth or changes in financial market sentiment, which could push up financing costs. Given sectoral interlinkages, a potential intensification of vulnerabilities in one sector could spill over to other sectors and countries, with negative systemic repercussions for the banking system.

Challenges to debt sustainability are in many ways best addressed by sound macroeconomic policies.

Placing debt on a sustainable path would also create space for more effective countercyclical stabilisation policies, while structural reforms would support potential growth of the economy.

Risk 4: Prospective stress in the investment fund sector amplifying liquidity risks and spillovers to the broader financial system

Euro area-domiciled investment funds have remained resilient to recent market stress.

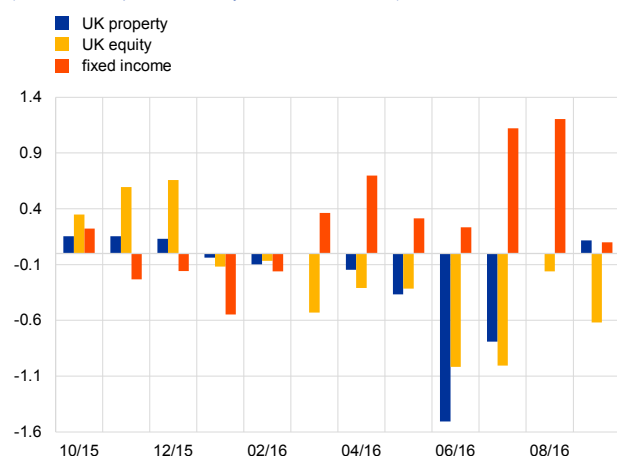
That said, a number of vulnerabilities stem from the rapidly growing investment fund sector, particularly funds exposed to liquidity mismatches and funds operating with high leverage. Many of the equity and bond funds are “open-ended” and subject to the possibility of daily redemption calls from shareholders. The June referendum in the United Kingdom vividly illustrated underlying vulnerabilities, with several equity and commercial property-focused funds being subject to high redemption calls (see [Chart 13](#)). Given the strength of associated outflows, a number of commercial property funds either directly suspended redemptions to protect the interests of long-term investors or introduced other measures to limit withdrawals. Euro area-domiciled property funds remained largely insulated given notice periods or redemption gates, but more importantly their limited exposures to UK property markets. This notwithstanding, the recent bouts of market turbulence in the UK real estate fund market have underlined the need to address financial stability risks stemming from inherent liquidity mismatches also for other types of funds, including fixed income funds.

Chart 13

Investors shunned British property and equity funds following the UK referendum in June

UK investment fund flows

(Oct. 2015 – Sep. 2016; monthly net flow, GBP billions)



Sources: The Investment Association and ECB calculations.

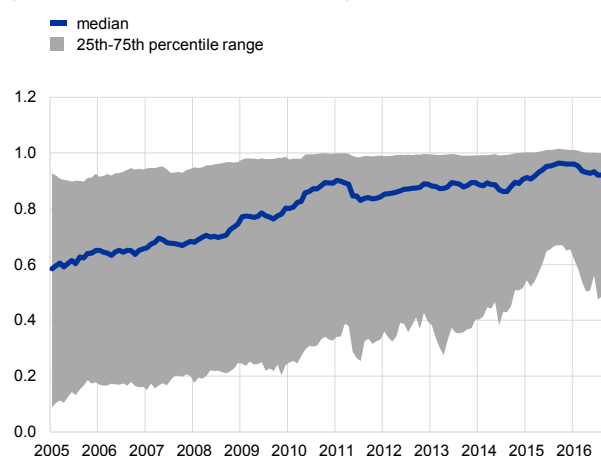
Note: Funds domiciled in the United Kingdom invested in UK property, UK equity and global fixed income markets.

Chart 14

Fixed income mutual funds have become increasingly exposed to market-wide risk

Individual fund betas relative to fund-specific benchmarks

(Jan. 2005 – Oct. 2016; estimated CAPM betas)



Sources: Thomson Reuters Lipper (LIM) and ECB calculations.

Notes: Median and interquartile range of CAPM (capital asset pricing model) betas for a dataset of 3,525 UCITS bond funds domiciled in the EU. The beta is estimated for each fund on the last business day of every month by regressing excess fund returns on the funds' respective excess benchmark returns (benchmarks as specified in the funds' prospectuses). The minimum observations used for the estimation are 250 business days (i.e. one year) using a rolling window.

Euro area bond funds' investment strategies have become more crowded in recent years which could amplify possible asset price corrections.

Fixed income funds' investment strategies have gradually become more challenging in the low interest rate environment, which has made it more difficult to generate absolute returns. As institutional investors find it increasingly difficult to invest in government

bonds, they have begun to search for higher yields at longer maturities and further down the credit risk spectrum. Illiquidity can be another source of relative yield, where less-liquid instruments offer seemingly higher returns, but at the risk of worse future performance if funds are forced to sell in a market downturn. As a result, investment strategies across funds have become more homogeneous. This has pushed cross-asset correlations higher, making funds increasingly exposed to market-wide risk (see [Chart 14](#)). Concerns remain that investors' overall demand for liquidity could suddenly rise in a market-wide downturn, thus adding to market pressures and a decline in secondary market liquidity.

Increased risk-taking by investment funds is also prevalent in holdings of bail-inable bank debt securities. A clear shift in asset allocation can be observed in the last two years from bank debt securities with higher seniority to those with lower seniority. In the markets for bail-inable bank debt, the share of the non-bank financial sector's holdings has grown, while the banking sector's share has been reduced (see [Box 7](#)). These patterns seem to be in line with the general trend of increased risk-taking by investment funds.

While the investment fund sector is subject to prudential regulation, most existing rules lack a systemic perspective and may not be suited to preventing the build-up of sector-wide risks. Enhanced information on liquidity in stressed circumstances and on leverage (both traditional and synthetic) would be needed to adequately monitor risks as this sector grows and becomes more interconnected. Alternative investment funds, in particular, operate without regulatory leverage limits and given this sector's size (such funds account for 39% of the European investment fund sector), it has the potential to contribute to systemic stress (see [Special Feature A](#)).

Policy considerations

The revision of the regulatory framework has continued with the aim of creating a sound and robust basis for the operation of financial institutions, markets and infrastructures, thereby reducing systemic risk and strengthening the resilience of the financial system as a whole. In the last six months substantial progress has been made in several areas, such as the revision of the Basel III framework, which is expected to be completed by end-2016. This initiative includes the finalisation of the work on reducing excessive variability in risk-weighted assets, establishing a new framework for the standardised approaches and finalising the design of the leverage ratio. The calibration of these proposals will be informed by detailed impact assessments so as to ensure that overall capital requirements will not increase significantly in the banking system. The finalisation of these elements of the Basel III framework will substantially reduce regulatory uncertainty, which has been a key concern for the banking industry recently.

Work has also continued at the international and EU levels on the review of the regulatory standards for the prudential treatment of banks' exposures to sovereigns. Given that potential changes in this area are expected to have an

impact on a wide range of institutions and activities, this work is being carried out in a careful, gradual and holistic manner.

Also, further progress was made in the revision of the crisis management and resolution framework. Ongoing work in this area aims at ensuring that banks have sufficient loss-absorbing and recapitalisation capacity to implement an orderly resolution, thereby minimising the impact on financial stability and avoiding the use of public money.

Finally, the European Commission has recently initiated a consultation on the review of the EU macroprudential policy framework. Macroprudential policy is a complement to monetary policy and microprudential policy, and the ECB fully supports a comprehensive review of the framework. The primary objective of the review should be to enhance the effectiveness of macroprudential policy without impeding the effectiveness of other complementary policies. The review should encompass the respective provisions included in the various pieces of EU law. In this regard, it is important to reflect the new institutional landscape in the macroprudential policy framework, revise the powers of micro- and macroprudential authorities, streamline the coordination mechanism between authorities, broaden the set of macroprudential policy tools and simplify their activation mechanism to ensure that authorities can address systemic risks in a timely and effective manner.