Overview

The financial stability situation in the euro area has continued to evolve positively over the past six months. Improved economic conditions underpin the assessment that there is no generalised overvaluation in euro area financial markets. Nevertheless, global risks in particular may trigger financial asset market corrections with negative repercussions on financial stability.

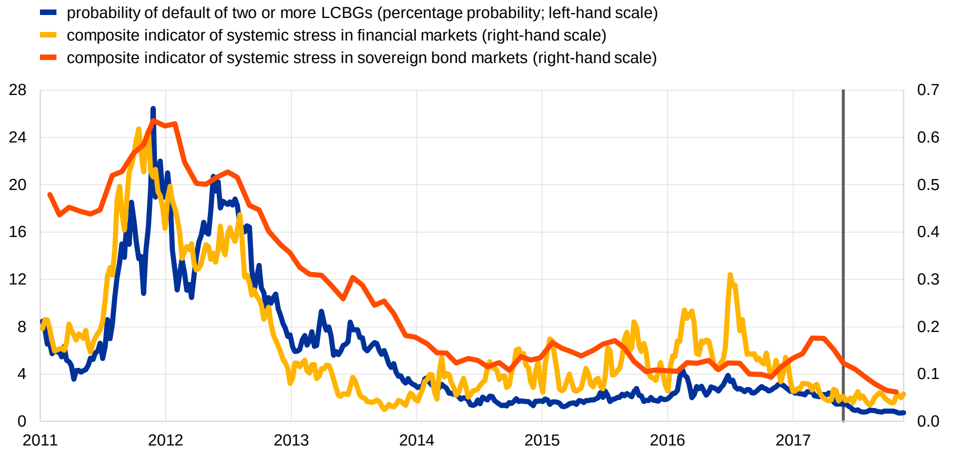
Euro area systemic stress indicators have remained low over the past six months (see Chart 1). Improved economic growth prospects in the euro area supported asset prices and contributed to suppressing volatility across most asset classes. Waning economic policy uncertainty was also reflected in lower financial market-based systemic stress indicators for the euro area. The election outcomes in the Netherlands and France earlier this year eased political uncertainty, which then remained fairly subdued in the second half of 2017. This easing was partly offset by higher geopolitical uncertainty at the global level, partly reflecting mounting tensions on the Korean peninsula. Euro area bank stress indicators remained low as investors perceived that a combination of improved growth prospects and higher interest rates would support bank profitability via higher loan volumes and increased lending margins.

Chart 1

Measures of broad financial market and bank stress remained low in 2017

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. 2017; the vertical line represents the publication of the previous FSR on 24 May 2017)



Sources: Bloomberg and ECB calculations.
Note: "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.

This issue of the FSR identifies four main risks to euro area financial stability over the next two years (see Table 1). The first risk refers to an abrupt and sizeable repricing of risk premia in global financial markets. The second risk concerns the continued weak profitability prospects for the banking sector. A potential re-emergence of public and private sector debt sustainability concerns constitutes the third risk. The fourth risk is associated with liquidity risks in the non-bank financial sector. The first three are assessed as being “medium-level systemic risks”, while the fourth is considered to be a “potential systemic risk”. Improved growth prospects in the euro area and other advanced economies mitigate the likelihood of these risks materialising and reduce the probable systemic impact should any of them materialise. On the other hand, continued risk premia compression and signs of increased risk-taking behaviour in financial markets are sources of concern as they may sow the seeds for large asset price corrections in the future. On balance, the offsetting influences of these two developments explain why the financial stability risk assessment is largely unchanged since the May 2017 FSR. It is important to be aware that all four of these risks are intertwined and if any one of them were to materialise it could potentially trigger the materialisation of others.

Table 1

Key risks to euro area financial stability

pronounced systemic risk
medium-level systemic risk
potential systemic risk

	Current level (colour) and recent change (arrow)*
1. Abrupt and sizeable repricing of risk premia in global financial markets – triggered e.g. by a policy expectation shock – leading to a tightening of financial conditions	medium-level →
2. Adverse feedback loop between weak bank profitability and low nominal growth, amid structural challenges in the euro area banking sector	medium-level →
3. Public and private sector debt sustainability concerns amid a potential repricing of risk premia and increased political fragmentation	medium-level →
4. Liquidity risks in the non-bank financial sector with potential spillovers to the broader financial system	potential →

* 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.

Risk 1: Abrupt and sizeable repricing of risk premia in global financial markets – triggered e.g. by a policy expectation shock – leading to a tightening of financial conditions

A cyclical rebound in growth, coupled with still accommodative monetary policies in advanced economies, has supported market sentiment. The reflationary expectations that contributed to higher US and global bond yields around the turn of the year have abated somewhat in recent months amid some concerns that US fiscal policies would be less supportive of growth than previously anticipated. That said, in the second half of 2017 growth prospects continued to improve and this improvement became more broad-based around the globe. At the same time, monetary policies remained accommodative and supported asset price valuations. Financial markets reacted positively to the firming macro outlook and the sentiment in markets remained fairly sanguine, with asset price volatility hovering at low levels across asset classes and economies. Overall, the improved macro picture contributed to containing financial stability risks stemming from financial markets as better growth prospects increase households' as well as other non-financial and financial sectors' buffers to absorb rapid asset price corrections.

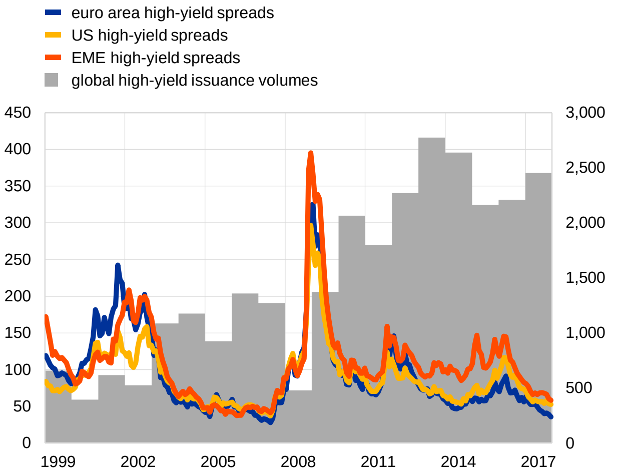
Signs of increased risk-taking in financial markets are becoming more universal. Notwithstanding the improved macro conditions, there are some indications that financial markets may not be fully alert to the possibility that the current favourable market sentiment can change quickly. Looking back, as central banks in advanced economies communicated the implementation of various unconventional measures which eased monetary policy, investors quickly reduced the premia required on a variety of riskier assets. These premia have, however, remained low throughout 2017 even though a number of central banks in advanced economies have begun preparing markets for an eventual recalibration of their policies, should the improvements in growth prospects continue. Across asset classes this is particularly noticeable in bond markets where there are increased signs of "pricing for perfection". In particular, spreads for the most risky issuers have continued to hover at very low levels, indicating a market perception that conditions will continue to improve and that there is a low probability of weaknesses emerging. Some evidence on volumes mirrors the optimism evident in asset prices. In fact, global issuance of high-yield bonds has remained high in recent years and this trend has continued in 2017 (see **Chart 2**).

Chart 2

Global asset prices and issuance volumes signal a high global risk appetite…

Global high-yield corporate bond issuance and high-yield corporate bond spreads

(for issuance: 1999-2017, annual data, USD billions; for bond spreads: Jan. 1999 – Oct. 2017, monthly data, basis points)



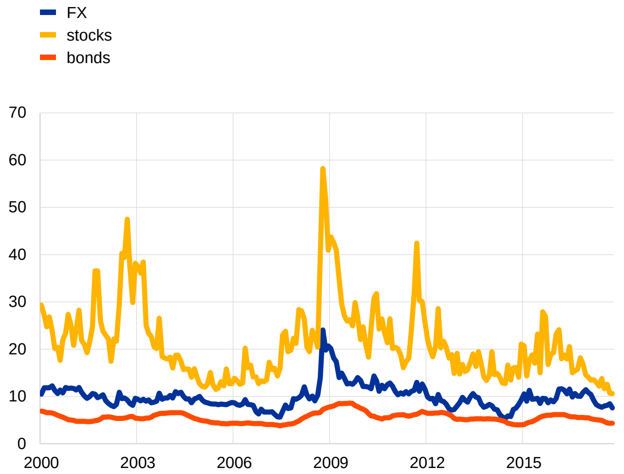
Sources: Bank of America, Bloomberg and Dealogic.
Notes: Government option-adjusted spreads (OAS) are employed. For issuance, data up to November 2017.

Chart 3

…amid low volatility across asset classes

Global asset price volatility

(Jan. 2000 – Oct. 2017, monthly data, annualised volatility in percentages)



Sources: Bloomberg, Thomson Reuters Datastream and ECB calculations.
Notes: FX volatility: implied volatility for EUR/USD, GBP/USD and JPY/USD. Stock markets: implied volatility for the S&P 500 index and EURO STOXX 50 index. Bond markets: realised volatility for US, German and UK ten-year sovereign bonds. Equal weights are applied.

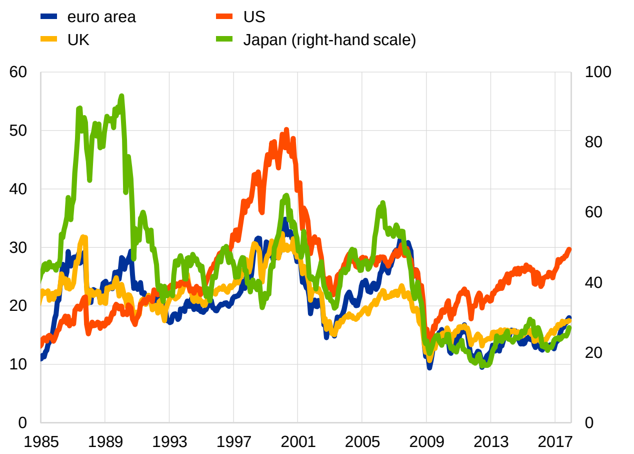
Asset price volatility has been low across market segments and economies in the recent past (see Chart 3). The willingness and ability to take on higher risk could partly be related to the low gyrations in financial markets. In fact, low financial market volatility can encourage the build-up of leverage and can also reduce metrics of expected losses (based on value-at-risk methodologies), thereby boosting financial institutions' appetite to take on more risk.

Chart 4

Mixed valuations of global stock prices

Cyclically adjusted price/earnings (CAPE) ratio

(Jan. 1985 – Nov. 2017, percentages)



Sources: Thomson Financial Datastream and ECB calculations. US CAPE ratio from Robert Shiller's homepage.

Standard valuation indicators do not signal general misalignments across asset classes in the euro area, but some segments require close monitoring. First, as regards tangible assets, residential real estate prices are broadly in line with the average valuations recorded over the last decades. That said, in some large cities, real estate prices have increased at a faster pace than household incomes.[1] Similarly, the hunt-for-yield environment has contributed to continued strong price increases for prime commercial properties in 2017 and available metrics for this sector suggest stretched valuations vis-à-vis fundamentals. Second, euro area corporate bond spreads for some of the lower-rated issuers are looking increasingly tight when compared with fundamentals. Valuations of euro area stocks (and of stocks in some other major markets), however, do not appear to be exceptionally elevated by historical standards (see **Chart 4**).

Valuations in the US corporate bond and stock markets are high. Corporate bond spreads in the United States have continued to compress despite increases in non-financial firms' leverage. In addition, as reported in previous issues of this Review, the stock prices of US firms are high compared with their earnings track record. The current situation of very low volatility coupled with elevated valuations has, in the past, been a harbinger of price corrections (see **Chart 5**). In fact, the current valuation and volatility environment looks exceptional, even compared with the conditions that preceded sharp corrections in US stock markets in the past. A sudden increase in US bond or stock market premia has the potential to spill over to other major markets, including those in the euro area.

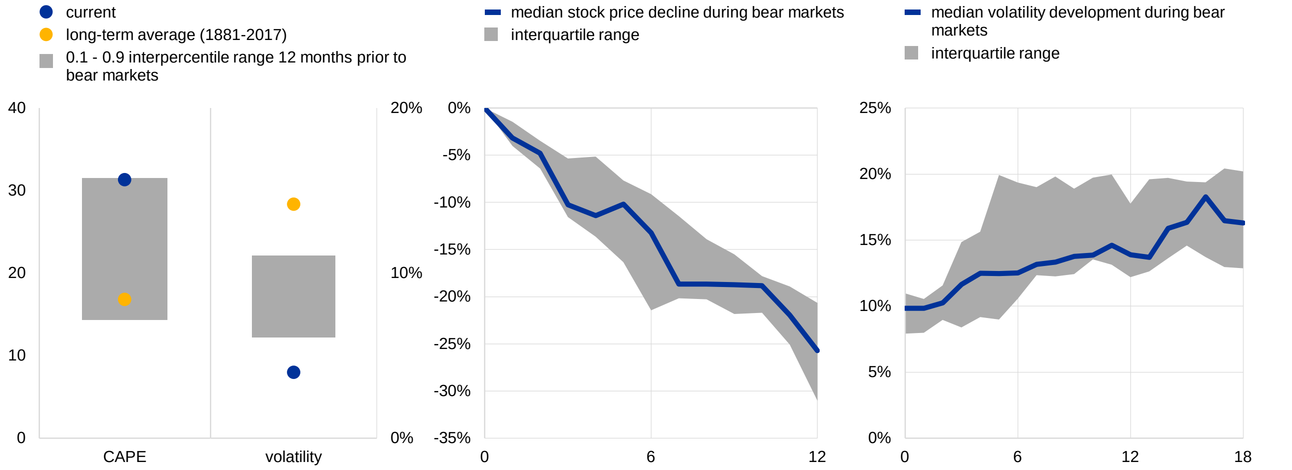
[1] See also Box 3 entitled "Residential real estate prices in capital cities: a review of trends", *Financial Stability Review*, ECB, May 2017.

Chart 5

Periods of low stock market volatility may incentivise higher risk-taking, possibly leading to stock market corrections and elevated volatility

Stock market valuations and volatility levels in the year preceding 13 US bear markets since 1881 (left panel); stock price developments and volatility movements during the 13 bear markets (middle and right panels)

(left panel: US CAPE ratio levels and annualised stock market volatility; middle panel: 12-month cumulative US stock price developments in percentages; right panel: 18-month development in US stock market volatility, annualised volatility)



Sources: R. Shiller's homepage and ECB calculations.
Notes: The 13 bear markets identified by Shiller are: 1892, 1895, 1902, 1906, 1916, 1929, 1934, 1937, 1946, 1961, 1987, 2000 and 2007 (for details, see R. Shiller's 22 September 2017 column). The dataset only allows for monthly computations. Thus, the volatilities shown in the left and right panels are computed based on the (annualised) standard deviation of monthly returns over a one-year period. This is the reason why the right panel has been extended to 18 months compared with 12 months for the middle panel.

An abrupt increase in risk premia (and volatility) may be triggered by a number of factors. First, lower than expected economic growth may lead to higher global risk premia. Second, several central banks in advanced economies have begun preparing to withdraw policy accommodation. Potential changes in monetary policy expectations could generate greater market uncertainty. For example, market participants currently expect a slower normalisation path for US policy rates (as reflected in Fed futures rates) compared with the views expressed by Federal Open Market Committee (FOMC) members. A convergence of market expectations towards FOMC member projections would exert upward pressure on US interest rates. Third, geopolitical uncertainty may increase further with possible adverse repercussions on global risk premia. As discussed in **Special Feature D**, should any of these (or other) possible triggers materialise, volatility and risk premia may overshoot on account of high valuations or a rapid unwinding of market positioning.

A sudden repricing in fixed income markets could lead to substantial capital losses for investors with large bond holdings. In the euro area, the impact would be felt by the non-bank financial sector, investment funds in particular. For insurers and pension funds, bonds account for almost 40% of their portfolios. For banks, this share is only around 15%. In addition, bond portfolio valuations have become more sensitive to changes in interest rates in recent years as the average duration of these portfolios has continued to increase.

The strong asset price increases observed in euro area markets in recent years have not been accompanied by excessive credit growth. Should material risks to financial stability arise stemming from credit-fuelled asset price booms, macroprudential policies would be best placed to tackle such challenges, not least given their capacity to be tailored to country and sector-specific characteristics. Indeed, in late 2016 the European Systemic Risk Board (ESRB) issued a set of country-specific warnings on medium-term vulnerabilities in the EU residential real estate sector, while the Governing Council of the ECB issued a statement calling for countries to implement legislative frameworks for borrower-based measures in all euro area countries.[2]

Risk 2: Adverse feedback loop between weak bank profitability and low nominal growth, amid structural challenges in the euro area banking sector

Euro area banks' profitability recovered somewhat in the first half of 2017, mainly driven by an increase in non-interest income, while banks' solvency continued to improve. Looking at the key sources of bank revenue, net interest income remained broadly stable compared with the first half of 2016, following a decline last year, with higher fee and trading income providing the most support to revenue growth. At the same time, loan impairment costs continued to diverge across banks. While the majority of banks reported declines in impairment costs amid a continued economic recovery, some banks recorded significant increases, linked to efforts to accelerate the clean-up of their balance sheets. As discussed below, although some of the cyclical challenges have abated, a number of structural challenges are still material and they continue to dampen banks' profitability prospects.

Euro area banks' valuations and profitability prospects are still subdued compared with those of their international peers. Euro area banks' stock prices have increased significantly since the trough in July 2016. As a result, valuations have improved from overly depressed levels, while analysts have revised up their earnings expectations slightly (see **Chart 6**). That said, there is still a wide gap between the valuations (and profitability prospects) of euro area banks and those of their global peers. In particular, more than half of euro area countries' bank stock indices have price-to-book ratios below one, which points to doubts on the part of analysts about the ability of these banks to earn a return on equity corresponding to their cost of equity.

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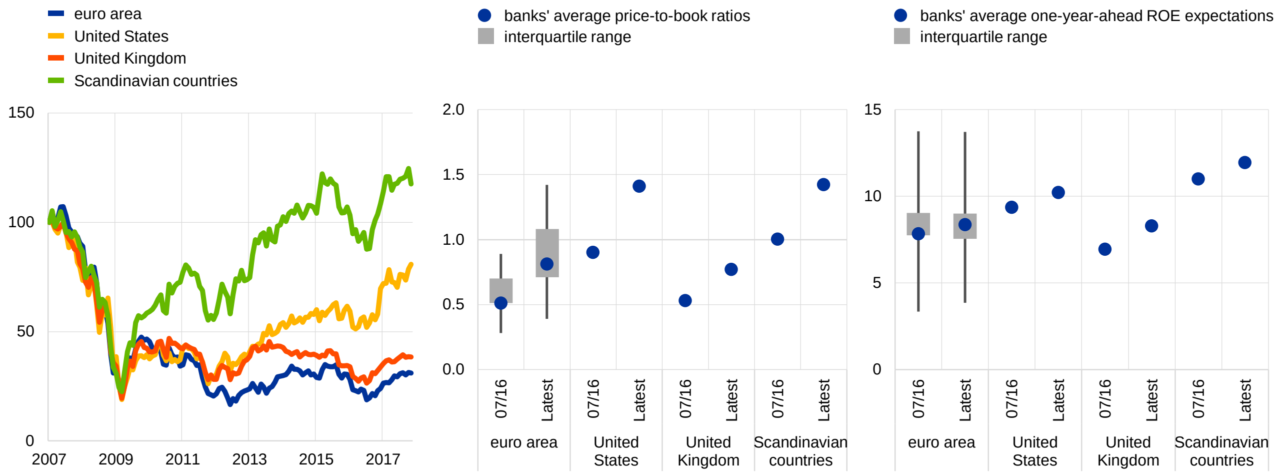
2 See the ESRB press release and the ECB press release.

Chart 6

Large differences in banks' stock price developments, valuations and profitability prospects across major markets

Stock price developments for banks (left panel), banks' price-to-book ratios (middle panel) and banks' one-year-ahead return on equity (ROE) expectations

(left panel: Jan. 2007 – Nov. 2017, series indexed to 100 in Jan. 2007; middle panel: min., max. and interquartile ranges (for euro area countries); right panel: annual percentages, min., max. and interquartile ranges (for euro area countries))



Sources: Thomson Financial Datastream and ECB calculations.
Note: The latest observations in the middle and right panels refer to November 2017.

A range of market-based risk indicators suggest that euro area banks are, on average, also considered riskier than their global peers. Market-based risk indicators for euro area banks are higher than those for the Nordic countries and the United States (see **Chart 7**). However, the euro area aggregate picture masks substantial heterogeneity at the individual bank level. Some banks in countries that were more affected by the crisis display a higher perceived riskiness, which has remained elevated over the past years, although the overall level of perceived riskiness of euro area banks has declined (see **Chart 3.1**). Overall, the low valuations and higher perceived risk probably reflect a number of structural challenges that cloud euro area banks' profitability outlook and the slow progress made in tackling high NPL ratios in certain jurisdictions.

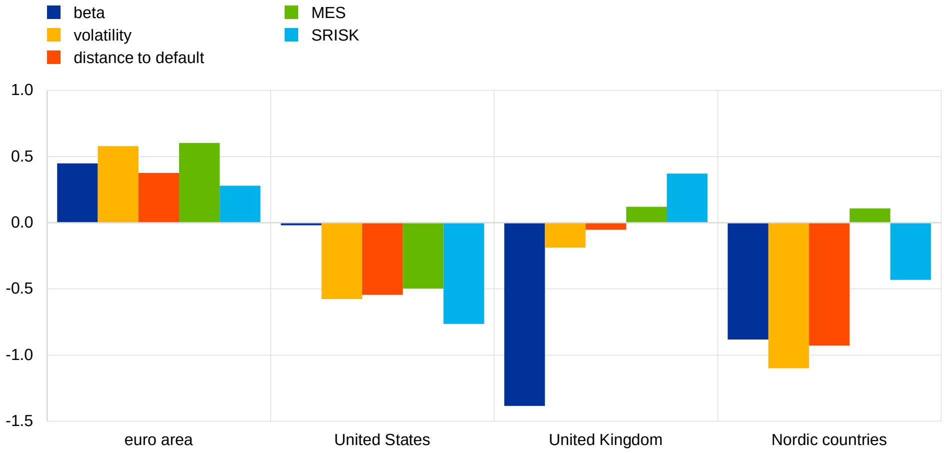
Notwithstanding the perceived high level of riskiness of euro area banks displayed by market indicators, quantitative evidence on banks' actual risk-taking activities does not indicate any broad-based excesses. Banks' own reported measures of loan riskiness (accounting for both expected and unexpected credit losses) have declined across most significant institutions' portfolios in recent quarters and a more detailed breakdown suggests that banks have reduced their exposures to borrowers with high credit risk. That said, some of the improvements in banks' credit risk metrics may mask some vulnerabilities. Banks' exposures towards loans secured by residential real estate (which carry relatively low risk weights) have increased, while higher residential real estate prices have contributed to lowering loan-to-value ratios. Banks' increased exposure towards real estate-related assets reinforces the link between the banking system and the real estate cycle on aggregate.

Chart 7

Euro area bank risk, on aggregate, still appears higher than in most other jurisdictions

Market-based measures of bank risk across different regions

(Q3 2017, z-score)



Sources: Bloomberg, Thomson Reuters Datastream, SNL Financial and ECB calculations.
Notes: The five market-based risk measures are computed for a sample of 59 listed global banks. Each risk measure is expressed in terms of the z-score, with higher values indicating higher bank risk. Beta refers to the beta coefficient from a regression of bank stock price returns on broad stock index returns. Volatility is the historical bank stock price volatility over one month. The distance to default measures the number of standard deviations by which the log of the value of the bank assets-to-debt ratio needs to deviate from its mean in order for default to occur. For more details on the computation of the distance to default, see Gropp, R., Vesala, J. and Vulpes, G., "Equity and bond market signals as leading indicators of bank fragility", *Working Paper Series*, No 150, ECB, 2002. MES is the one-day loss expected if market returns are less than -2% and SRISK is the capital shortfall of a bank if the stock market falls by 40% over the next six months. For further details on the computation of MES and SRISK, see Brownlees, C. and Engle, R., "SRISK: A Conditional Capital Shortfall Measure of Systemic Risk", *Review of Financial Studies*, Vol. 30, 2017, pp. 48-79.

The faster reduction of NPLs has also contributed to the de-risking of bank balance sheets, but progress remains uneven across banks. Euro area banks have made notable progress in reducing the stock of NPLs since mid-2016. Asset quality has continued to improve in all sectors, with NPL reductions in the non-financial corporate (NFC) sector accounting for nearly three-quarters of the decline (see **Chart 8**). Despite the recent notable improvements, progress in reducing NPL levels remains uneven across banks and countries. For some banks, the still high NPL ratios continue to put pressure on their profitability, partly because provisions offset a considerable part of operating profits and also because NPLs consume balance sheet capacity.

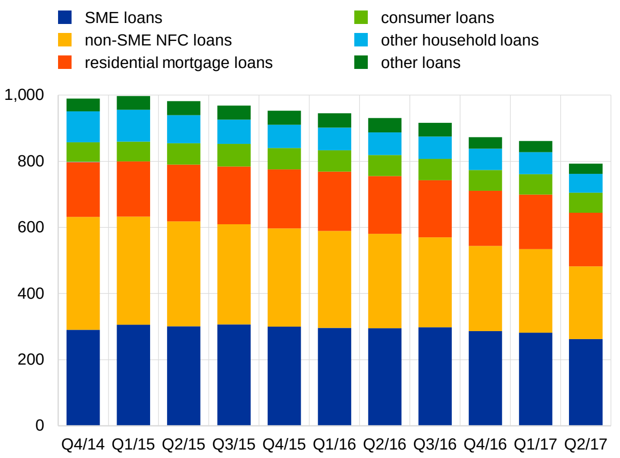
A number of further structural challenges continue to dampen profitability prospects for euro area banks. Although structural challenges differ depending on banks' business models and the country they operate in, there are some common characteristics that have been hampering the profitability of a large set of banks across euro area jurisdictions. In particular, the operating costs of euro area banks are high compared with those of many of their global peers, while the degree of revenue diversification is low for many of these banks.

Chart 8

Improved asset quality, but still elevated NPL levels

Non-performing loans by sector and loan type

(Q4 2014 – Q2 2017, quarterly data, € billions)



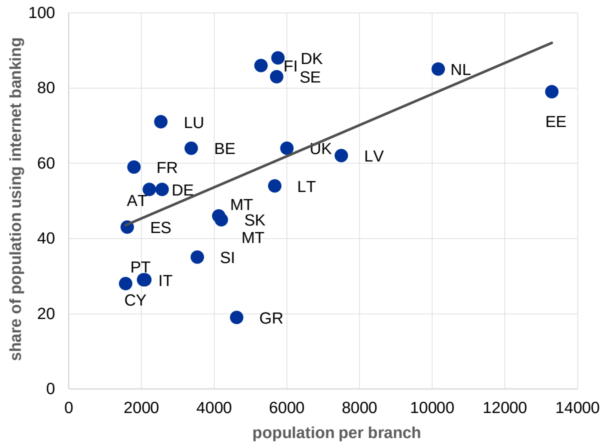
Source: ECB supervisory data.
Note: Based on significant institutions.

Chart 9

A leaner branch structure has, in some countries, been facilitated by internet banking

Population per branch and internet banking penetration

(2016; x-axis: population per branch; y-axis: share of the population using internet banking)



Sources: ECB structural financial indicators and Eurostat.
Notes: The share of the population using internet banking is measured as a percentage of individuals aged 16 to 74. Data on bank branches for the UK refer to 2014.

Operating costs are in general high across euro area banks and various cost-efficiency metrics have deteriorated somewhat in recent years. Further banking sector consolidation could be a way to help reap economies of scale and improve banks’ cost-efficiency. The most direct way of achieving further consolidation would be through mergers and acquisitions, as well as a further reduction in bank branches and the number of employees. These potential benefits of consolidation should be considered alongside possible costs: for example, there could be renewed too-big-to-fail problems or a greater risk of cross-border contagion. However, the new Single Supervisory and Single Resolution Mechanisms, as well as the post-crisis regulatory framework, are designed to address financial stability concerns related to large cross-border institutions.

A greater focus on digitalisation could bring about permanent improvements in banks’ cost-efficiency, although this requires some upfront investment. Empirical evidence suggests that a higher digitalisation of banking can help to reduce fixed costs (see **Chart 9**). Potential efficiency gains in this area could be further enhanced by governments stepping up their efforts to improve the IT infrastructure and the general level of IT literacy among the general public.

Many euro area banks need to enhance their revenue-generating capacity. In particular, banks’ revenue sources can be better diversified by seeking strategies to increase the share of non-interest income. Similarly, another avenue for banks to address revenue-side challenges could be to increase the geographical diversification of their activities (see also **Special Feature B**). Finally, the adoption of financial innovation (including “fintech”) could also provide new opportunities for banks to adapt their business models and create new revenue sources (e.g. via improved digital financial service offerings or via an expanded range of capital market-related activities).

Despite the low-yield environment, the profitability of large euro area insurers has increased slightly in 2017 and their solvency positions remain robust. Supported by improved economic growth prospects, insurers achieved solid underwriting results in the first half of 2017. At the same time, investment income continued to be weak, which is a particular concern for traditional life insurers, especially those that guarantee high and fixed returns to policyholders. To boost profitability, insurers have been taking on more risk, for instance through larger investments in equity and mixed funds. While this may improve insurers' profitability prospects, it also makes insurers vulnerable to the risk of an abrupt and sizeable repricing of risk premia. Turning to reinsurers, their 2017 earnings are expected to suffer, owing to a number of devastating Atlantic hurricanes and two earthquakes in Mexico.

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. Last July, the Economic and Financial Affairs Council announced a plan to tackle NPLs in the European Union, which envisages the introduction of new supervisory tools, as well as measures to support the sale of NPLs. In the euro area, the ECB has complemented its NPL guidance with an addendum, which is subject to public consultation and provides quantitative prudential provisioning guidance applicable to newly classified NPLs as of January 2018. **Special Feature A** discusses three sources of market failure which have prevented the development of liquid secondary markets for NPLs: information asymmetry, oligopsonistic market structure, and imperfect excludability. An NPL transaction platform, providing an exchange where banks and investors could trade NPLs based on standardised data templates, can help address these market failures and reduce the wide bid-ask spreads on NPLs, thus contributing to a faster clean-up of bank balance sheets.

Risk 3: Public and private sector debt sustainability concerns amid a potential repricing of risk premia and increased political fragmentation

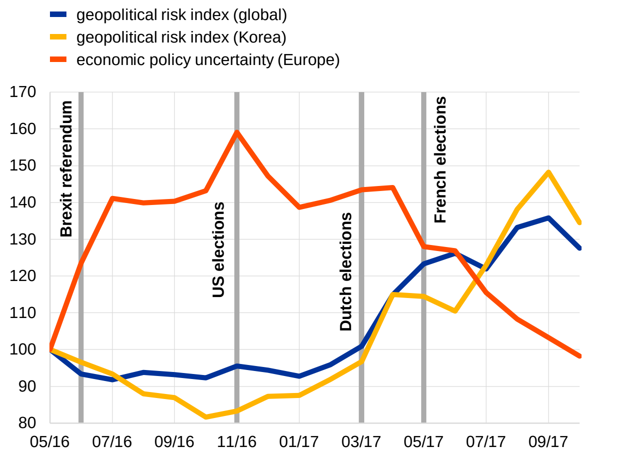
Stress in the sovereign debt markets has abated over the past six months. The ECB's market-based measure of stress in euro area sovereign bond markets has declined over the past six months, returning to levels comparable to those observed before the financial crisis (see **Chart 1**) amid a markedly narrowing cross-country dispersion. A decomposition of the stress indicator shows that improved liquidity conditions and low bond market volatility were the main drivers of the drop in the aggregate measure. In addition to the improved economic growth prospects, these favourable developments were likely underpinned by reduced economic policy uncertainty in Europe following national elections in major euro area countries (see **Chart 10**) and a continuation of the ECB's supportive monetary policy measures.

Chart 10

Divergence of economic policy uncertainty and geopolitical risks

Geopolitical risk index and European economic policy uncertainty

(May 2016 – Oct. 2017, six-month moving averages)



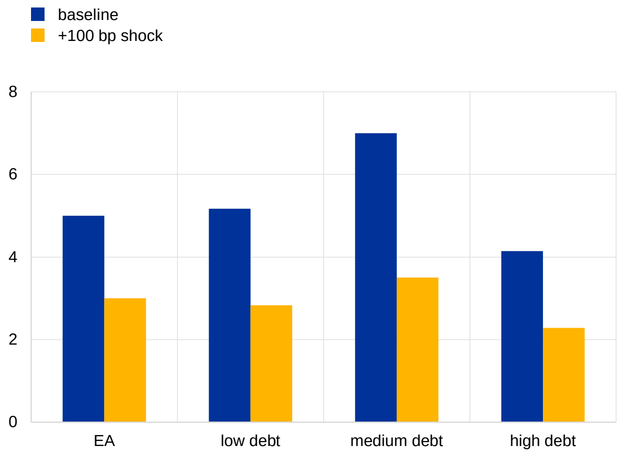
Sources: policyuncertainty.com and Caldara and Iacoviello (2017).
Notes: Measures of economic policy uncertainty are taken from Baker, S., Bloom, N. and Davis, S., "Measuring Economic Policy Uncertainty", Chicago Booth Research Paper No 13/02, January 2013. The geopolitical risk index of Caldara and Iacoviello is used. For more details, see Caldara, D. and Iacoviello, M., "Measuring Geopolitical Risk", working paper, Board of Governors of the Federal Reserve Board, November 2017.

Chart 11

An interest rate shock would lead to a rise in average funding costs in highly indebted countries sooner

Time until the average cost of government funding begins to increase

(years)



Source: ECB calculations.
Notes: Under the baseline scenario, countries with fiscal positions below their medium-term objective (MTO) are assumed to take additional consolidation measures (the minimum to avoid sanctions under the Stability and Growth Pact) as of 2018 to reach the country-specific MTOs (which only partly account for the additional ageing burden). Countries with a structural fiscal position above the MTO are assumed to revert to the MTO. Under the alternative scenario, a +100 basis point shock is applied to the marginal market interest rate as of 2017. To separate the effect of the interest payment shock, 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 baseline scenario, see Bouabdallah et al., "Debt sustainability analysis for euro area sovereigns: a methodological framework", *Occasional Paper Series*, No 185, ECB, 2017. The "low debt" category covers euro area countries with public debt levels below 60% of GDP (i.e. Estonia, Latvia, Lithuania, Luxembourg, Malta and Slovakia) as at year-end 2016. Countries with public debt levels of between 60% and 90% of GDP (i.e. Austria, Finland, Germany, Ireland, the Netherlands and Slovenia) are labelled "medium debt" countries, while countries with debt levels of over 90% (i.e. Belgium, Cyprus, France, Greece, Italy, Portugal and Spain) are referred to as "high debt" countries.

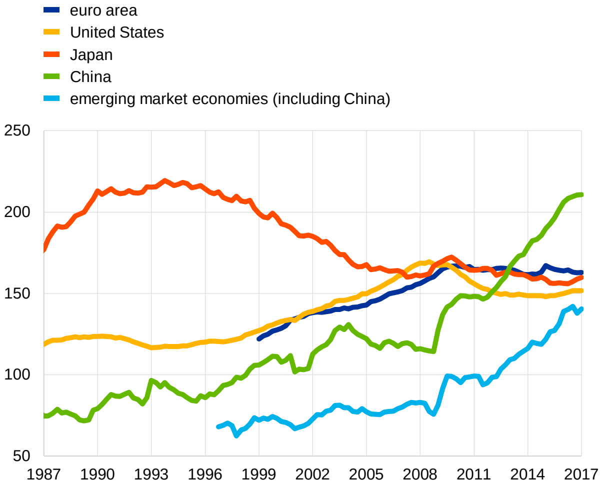
Higher interest rates may trigger concerns about sovereigns' debt servicing capacity. The main trigger for renewed debt sustainability concerns relates to the possibility of a sudden increase in bond yields, particularly if it takes place without a commensurate improvement in growth prospects. Highly indebted euro area sovereigns are more susceptible to an earlier rise in financing costs than countries with lower debt levels (see **Chart 11**). Most countries have, however, taken advantage of the favourable interest rate environment to increase the duration of their debt, which will make the impact of an eventual rise of funding costs more gradual. Furthermore, while the most imminent market concerns regarding political risks have abated as the electoral calendar proceeds, the distrust in mainstream political parties continues to rise, leading to fragmentation of the political landscape away from the established consensus, in the form of a multitude of parties spanning a very wide political spectrum. A growing fragmentation may lead to difficulties in governance and a further slowdown of fiscal and structural reform efforts. At the same time, uncertainty outside the euro area appears to have grown in recent months, particularly regarding geopolitical risks (see **Chart 10**). Should these tensions intensify further, risk premia on global assets may rise. Given the high degree of financial interlinkages across sectors and countries, risk premia on euro area assets may not be shielded from further increases in global uncertainty.

Chart 12

Euro area non-financial private sector indebtedness is high by historical and international standards

Indebtedness of the non-financial private sector in selected advanced and emerging market economies

(Q1 1987 – Q1 2017, percentage of GDP)



Source: OECD.
Note: Non-financial private sector indebtedness is measured as the sum of household and non-financial corporate debt.

Potential debt sustainability concerns also represent a risk for the non-financial private sector. Private sector indebtedness in the euro area remains high by both historical and international standards (see **Chart 12)**. Corporate deleveraging has been slow despite historically low financing costs. This makes firms, in general, vulnerable to a sharp increase in interest rates. An unearthing of corporate sector vulnerabilities has the potential to spill over to the banking system, predominantly via deteriorating asset quality. As discussed in **Box 1**, the sensitivity of firms' debt servicing capacity to an interest rate shock appears to be higher in countries that were more affected by the sovereign debt crisis. The indebtedness of euro area households appears to be less of a concern at the aggregate euro area level, but the situation remains highly heterogeneous across euro area countries. Countries with stretched house price valuations and elevated levels of household debt look more vulnerable.

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 the growth potential of the economy. Furthermore, regulatory reforms have been introduced that have reduced the likelihood that sovereign debt sustainability would be affected by issues originating in the banking sector. In particular, the Bank Recovery and Resolution Directive that has been put in place limits the fiscal implications of resolving bank failures. On the private sector side, borrower-based macroprudential measures such as limits on loan-to-value or debt service-to-income ratios can help address debt sustainability concerns, in particular for households.

Risk 4: Liquidity risks in the non-bank financial sector with potential spillovers to the broader financial system

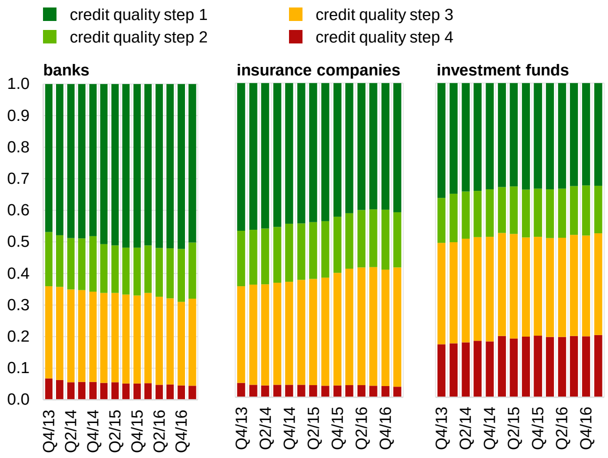
Investment funds are increasingly engaging in higher-risk activities. Euro area asset managers have been rebalancing their asset allocations towards lower-rated and higher-yielding assets in recent years (see **Chart 13**). In addition, the average residual maturities of investment funds' debt securities holdings have increased by more than one year since December 2013, while increases can also be identified for other sectors, such as insurance companies and pension funds (see **Chart 2.14**). The continued increase in risk-taking, coupled with limited buffers, implies that fund redemptions could adversely affect market conditions following a potential repricing of global risk premia. Redemption patterns tend to be procyclical, with flows into funds increasing when returns are higher and vice versa (see **Box 6**). Such procyclicality has, in the past, intensified during periods of market stress and can amplify adverse market dynamics.

Chart 13

Investment funds increased their holdings of lower-rated debt securities

Euro area financial institutions' holdings of debt securities, broken down by rating and sector

(Q4 2013 – Q1 2017, percentage points of total assets)



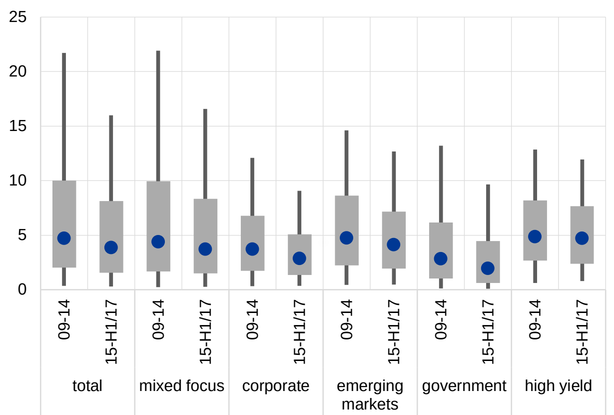
Source: ECB Securities Holdings Statistics by Sector and ECB calculations.
Notes: The legend denotes credit quality steps defined in accordance with the Eurosystem credit assessment framework (ECAF). The first category includes securities rated from AAA to AA-, the second from A+ to A- and the third from BBB+ to BBB-. A fourth category is added which includes all rated securities with a rating below credit quality step 3. The analysis is based on the nominal amounts of euro- and foreign currency-denominated securities, including "alive" and "non-alive" securities. The investment fund sector does not include money market funds.

Chart 14

Bond funds' liquidity buffers shrank across all types of funds

Liquidity buffers of bond funds domiciled in the euro area

(percentage points of total assets)



Sources: Lipper and ECB calculations.
Notes: The sample of the first period (2009-14) consists of end-of-year fund-level holdings from December 2009 to December 2014. The second period (2015-H1 2017) contains the fund-level holdings for December 2015, December 2016 and June 2017. The boxplots show the 10th, 25th, 50th, 75th and 90th percentiles of the distributions. The liquidity buffers include cash holdings, debt securities issued by euro area governments and short-term instruments.

Sector-wide indicators also point to a decrease in the most liquid positions of bond funds. Along with signs of increased risk-taking activities, bond funds' liquidity buffers (including cash holdings, debt securities issued by euro area governments and short-term instruments) have gradually been shrinking across all types of funds since 2009 (see **Chart 14**). This notwithstanding, higher buffers are still held by funds which invest in less liquid markets. However, also for these funds, liquidity and maturity transformation has grown, while their ability to buffer large outflows has diminished.

Passive investment strategies are gaining in importance. A discernible global trend in recent years has been the growth in passive investment strategies. In the euro area, passive strategies have been attracting continued inflows into the equity fund market since the start of the global financial crisis, while active strategies have experienced cumulated outflows of about the same magnitude. These shifts can partly be attributed to the low costs charged by funds engaged in passive strategies (such as exchange-traded funds). As the relative weight in markets of passive strategies rises, there is however a risk that diversity of opinion among investors is supressed. This, in turn, may lead to inadequate price discrimination in markets.

While the investment fund sector is subject to prudential regulation, most existing rules lack a systemic perspective and may not be well suited to prevent 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 further and becomes more interconnected.

Policy considerations

The ECB continued to provide substantial contributions to various regulatory initiatives at both the international and EU levels, with the aim of creating a sound and robust regulatory framework for financial institutions, markets and infrastructures. As regards the banking sector, key initiatives at the European level included the legislative proposals on the revision of the Capital Requirements Regulation and Directive, as well as the Bank Recovery and Resolution Directive and the Single Resolution Mechanism Regulation. The European Commission's proposed reform package will bring the post-crisis regulatory reforms in the European Union close to completion, strengthening the regulatory architecture, reducing risks in the banking sector and, thereby, increasing the stability and resilience of the financial system. The detailed views of the ECB on the Commission's proposal are outlined in the ECB Opinion on amendments to the Union framework for capital requirements of credit institutions and investment firms (CON/2017/46) and in the ECB Opinion on revisions to the Union crisis management framework (CON/2017/47).[3]

The European Commission's package includes a number of proposals that are of particular relevance for the design and operation of the macroprudential framework. More specifically, the proposed reform package clarifies the institution-specific nature of the Pillar 2 framework (i.e. the Supervisory Review and Evaluation Process or SREP), which should not be used to address macroprudential risks. At the same time, the removal of Pillar 2 from the macroprudential toolkit should be accompanied by targeted revisions to the macroprudential framework, and macroprudential authorities should be provided with a sufficient set of instruments to effectively address systemic risks. Key elements of the targeted review could include: (i) revising elements of the capital buffer framework to enhance consistency and avoid overlaps; (ii) streamlining the notification, coordination and reciprocity requirements of macroprudential measures; and (iii) increasing the flexibility of the existing toolkit, while ensuring the coherence and effectiveness of the EU-wide macroprudential framework. Such revisions are essential in order to enable macroprudential authorities to prevent and address systemic risks in a timely and effective manner.

3 Opinion of the European Central Bank of 8 November 2017 on amendments to the Union framework for capital requirements of credit institutions and investment firms (CON/2017/46) and Opinion of the European Central Bank of 8 November 2017 on revisions to the Union crisis management framework (CON/2017/47).

The European Commission has recently published a package of proposals to strengthen the European System of Financial Supervision (ESFS). The proposals amend the regulations establishing the three ESAs and the ESRB Regulation, and make modifications to other pieces of EU law as well.[4] The set of reforms is aimed at ensuring an intensified supervisory convergence across the European Union, enhancing the governance and funding structure of the ESAs, as well as reinforcing macroprudential coordination at the EU level. With regard to the European Banking Authority (EBA), the ECB will not be granted a voting membership of the Board of Supervisors of the EBA. Furthermore, it is foreseen that the ECB will not be a member of or an observer in the new EBA Executive Board. With regard to the ESRB, several targeted amendments aim to enhance its efficiency. The proposal includes the formalisation of ECB Banking Supervision participation in the ESRB General Board and the respective committees. However, it does not include any reference to the ECB's role in risk assessment with respect to the euro area banking sector. Therefore, in order to avoid a possible duplication of work by the ECB and the ESRB in this area, further clarification of the respective tasks would be welcome.

[4] For more information on the review of the ESFS, see the European Commission's website.