

3 Euro area financial institutions

Euro area financial institutions have made further progress in dealing with legacy issues from the financial crisis. At the same time, the range of challenges to be faced has differed across the banking, insurance and rapidly growing shadow banking sectors.

Building on the ECB's comprehensive assessment exercise, euro area banks have strengthened their balance sheets further, and continued with their efforts to adjust business models to an evolving operating environment. At the same time, the challenges in the operating environment are still sizeable, while progress remains uneven across institutions. Persistently weak profitability and the large stock of legacy problem assets both continue to weigh on banks' capacity to simultaneously build up capital buffers and provide credit to the real economy, which will eventually have systemic consequences. Despite survey-based signs of a broader easing of credit standards, there is still a risk that bank-based credit intermediation remains subdued, in particular in vulnerable countries that are most in need of a recovery of lending.

Similar to banks, insurers are continuing to adjust to challenges to their operating environment, especially to that of generating returns in a low-yield environment. Low yields on investment create a headwind for earnings and could prompt firms to take on more credit risk in fixed income investment portfolios, leaving them more exposed to a potential reassessment of risk premia.

While the euro area banking and insurance sectors have struggled in the aftermath of the crisis, the non-bank financial sector has continued to experience a secular growth trend, benefiting from financial disintermediation amid an expansion of non-money market investment funds. This has implied a growing systemic footprint of such firms and a potentially destabilising role of non-bank entities in asset price adjustments and liquidity spirals, with potential for contagion to the broader financial system. While the need for monitoring this growing segment of financial institutions is clear, a lack of comprehensive and harmonised reporting makes assessing specific risks difficult, including those related to synthetic leverage and to securities financing transactions.

Against the background of these developments, progress has continued apace in the area of financial sector regulation, with most key building blocks nearing completion. Some key elements of the new regulatory framework that are still subject to finalisation and calibration include parts of the liquidity regulation, leverage ratio provisions, securitisation rules and measures aimed at increasing the total loss-absorption capacity of global systemically important banks (G-SIBs). The finalisation of the ongoing initiatives will significantly reduce the remaining regulatory uncertainty and will contribute to strengthening the resilience of the financial system. In addition, there has been significant progress in the implementation of a banking union in Europe, given the Single Supervisory Mechanism (SSM) and the Single Resolution

Mechanism (SRM) that became operational on 4 November 2014 and 1 January 2015 respectively.

3.1 Banking and insurance sector face several challenges, while expansion in activity outside the regulatory perimeter continues

3.1.1 Weak bank profitability persists and progress in dealing with the legacy of problem assets remains slow¹⁹

Euro area banks have made further progress in strengthening their balance sheets, while adapting to an evolving regulatory and a challenging operating environment. These efforts notwithstanding, the sector is facing continued challenges on at least two fronts. First, bank profitability remains low, or even negative, in large parts of the euro area banking sector, so that organic capital growth is limited in a period in which many banks are still adjusting to higher capital requirements. Profitability remains under pressure on account of elevated loan loss provisions (mainly banks in vulnerable euro area countries) and subdued revenue growth in an environment of low nominal growth and flat yield curves. A second challenge, particularly pressing for banks in vulnerable countries, relates to the large stock of problem assets. While asset quality deterioration has continued to decelerate, non-performing loan ratios remain above 10% for around half of the significant banking groups (SBGs) in the euro area, and progress in writing off bad loans remains slow. Overall, weak profitability and the large stock of low-return legacy assets continue to weigh on banks' capacity to simultaneously build up capital buffers and provide credit to the real economy.

Euro area banks' financial condition

A confluence of cyclical and structural factors continues to impair the **profitability** of large euro area banks, which has generally not kept up with that of their global peers (see Chart 3.1). Admittedly, cyclical headwinds across regions differ, with euro area bank developments depressed by a still fragile and uneven economic recovery, and a flat yield curve environment is putting pressure on net interest margins. Ultimately, banks' return on equity has remained below their cost of equity, despite some decline in the latter (see Box 5), which points to a structural need for further balance sheet adjustment.

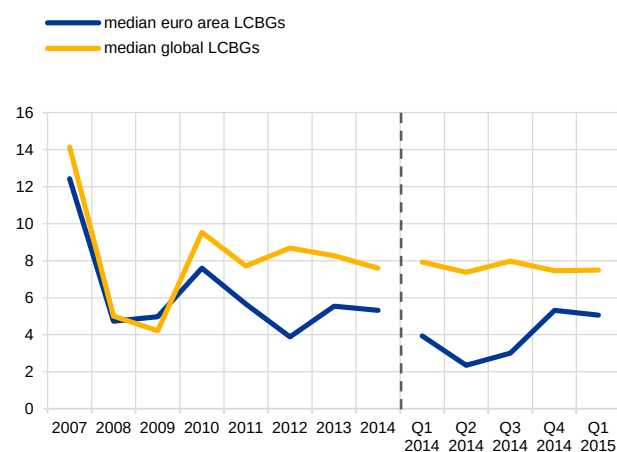
¹⁹ The analysis in this sub-section is based on 93 significant banking groups (SBGs) and 18 large and complex banking groups (LCBGs) in the euro area. For details on the bank sample, see Box 5 in the November 2013 Financial Stability Review.

Chart 3.1

Euro area bank profitability remains below that of international peers...

Return on equity of euro area and global large and complex banking groups

(2007 – Q1 2015; percentages; median values)



Source: SNL Financial.

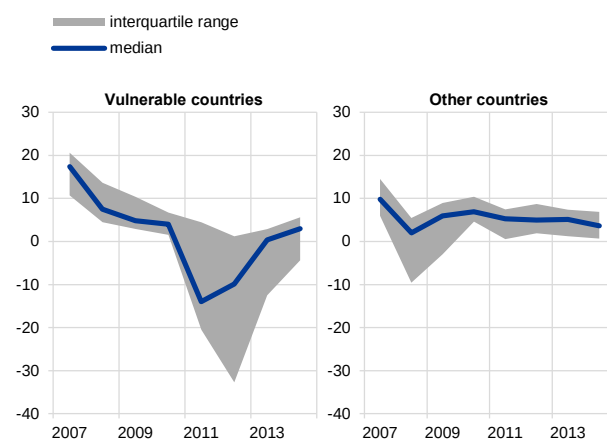
Notes: Based on publicly available data on large and complex banking groups (LCBGs). The right-hand panel of the chart shows four-quarter rolling ROEs for LCBGs that report on a quarterly basis.

Chart 3.2

... with particularly weak financial performance in large parts of vulnerable countries' banking sectors underlining the importance of cyclical factors

Return on equity of significant banking groups in vulnerable and other euro area countries

(2007-2014; percentages; median values)



Source: SNL Financial.

Notes: Vulnerable countries include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Based on publicly available data on SBGs.

Banks' financial performance has remained widely dispersed across the euro area, which is linked to prevailing economic conditions (see Chart 3.2) in many ways, with around one-third of the significant banking groups that are located in vulnerable countries reporting losses in 2014 – almost double the proportion in other countries. For a number of banks in both vulnerable and other euro area countries, high loan loss provisions continued to be the main drag on profits amid weak domestic macroeconomic conditions, although they were partly also due to additional value adjustments necessitated by the outcome of the ECB's asset quality review. In some cases, large write-downs related to cross-border operations (such as those in Russia, Ukraine and some central and eastern European countries) or litigation costs weighed on bank results.

Box 5

Measuring the cost of bank equity in the euro area

Adequately capturing the cost of bank equity is key for regulators, supervisors and banks given the fundamental role of equity in banks' capital structures. At the same time, the cost of equity cannot be directly observed and must be inferred from a combination of market prices and expectations of future cash flows. Indeed, measuring the rate of return investors expect from an investment in bank equity is not straightforward given difficulties in estimating future cash flows and assumptions about

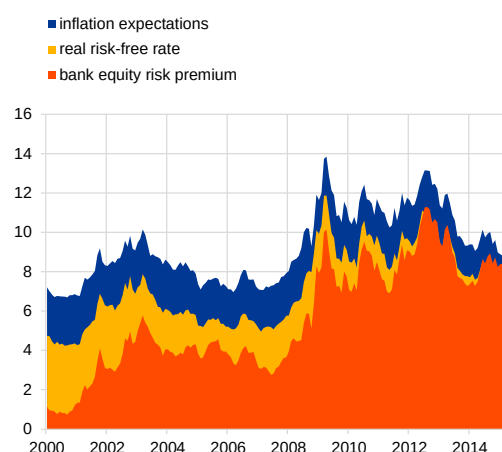
the retention of earnings; a high degree of uncertainty is therefore intrinsic to any estimate of the cost of equity, irrespective of the methodology employed.²⁰

Chart A

Banks' equity premia have become the main driver of the cost of equity

Euro area banks' cost of equity and components

(Jan. 2000 – Mar. 2015; percentages)



Sources: Bloomberg, Thomson Reuters Datastream, Consensus Economics and ECB calculations.

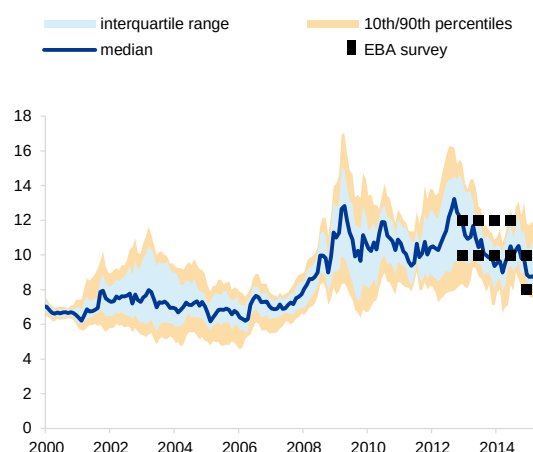
Notes: Cost of equity computed for the portfolio of 33 euro area banks included in the EURO STOXX index. Inflation expectations are measured using point forecasts of CPI inflation five to ten years ahead (arithmetic mean of individual estimates) and are derived from Consensus Economics forecasts; the real risk-free rate is given by the interest rate on ten-year inflation-linked bonds.

Chart B

After peaking in mid-2011, the cost of bank equity is now on a declining path

Euro area banks' cost of equity: cross-sectional distribution of individual estimates and European Banking Authority's survey (modal bracket)

(Jan. 2000 – Mar. 2015; interquartile range and 10th/90th percentiles; percentages)



Sources: Bloomberg, Thomson Reuters Datastream, European Banking Authority (EBA) and ECB calculations.

Notes: Cross-sectional distribution of individual cost of equity estimates for a sample of 33 listed euro area banks included in the EURO STOXX index. The EBA survey series maps the risk assessment questionnaire figure with the largest number of respondents.

One means of inferring the cost of bank equity is by combining insights from the capital asset pricing model and the dividend discount model (CAPM and DDM respectively). Such an approach can be applied to a portfolio of large and listed euro area banks, by imputing the equity risk premium for the whole equity market via the DDM and by projecting this onto individual banks via their respective CAPM beta, thus yielding bank-specific equity risk premia.²¹

The (time-varying) equity risk premium is computed using a two-stage version of the DDM. Dividend growth in the first period is derived from the Institutional Brokers' Estimate System (I/B/E/S), assuming that dividends are a constant fraction of earnings. In the second period, dividend growth converges to the long-term growth expectations for the whole economy over a period of ten years.²²

Next, bank-specific betas are estimated through the CAPM where the "market portfolio" is proxied by the EURO STOXX index. The choice of using the euro area market as the pricing factor in the

²⁰ "Valuing stock markets and the equity risk premium", *Monthly Bulletin*, ECB, November 2008.

²¹ The portfolio includes 33 euro area banks included in the EURO STOXX index. These banks account for approximately 55% of euro area banks' total assets and 85% of those of listed banks.

²² Fuller, R.J. and Hsia, C., "A simplified common stock valuation model", *Financial Analysts Journal*, Vol. 40, No 5, 1984, pp. 49-56. In this model, $H = 5$, the number of years for which "abnormal" growth rate forecasts are available as reported in the I/B/E/S database. Within ten years, the forecasted growth rate of earnings transits smoothly to the forecasted long-term growth rate (of GDP) as reported by Consensus Economics forecasts.

CAPM is motivated by the (virtual) absence of currency risk and the low cross-border transaction costs that characterise the currency union. Betas are estimated with standard linear regression, on short rolling windows of one year of daily data.²³

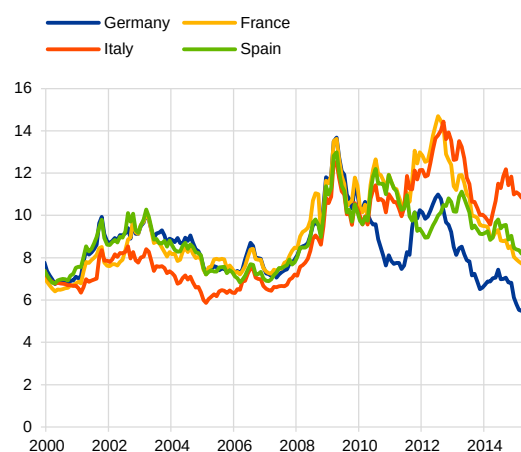
According to model estimates, the beta for the portfolio of listed banks was fairly stable between 2000 and the first half of 2007, ranging between 1.0 and 1.2. Since the eruption of the financial crisis, the quantity of risk carried by bank shares (i.e. banks' beta) constantly increased until it reached 1.7 in the second half of 2012. Consequently, banks' equity premia (orange area in Chart A representing a "beta-amplified" version of the market equity premium) became the main driver of the cost of equity after the crisis, while the risk-free rate continued to drop. The real risk-free rate, which has recently turned negative, contributed to keeping the real and nominal cost of equity subdued in the most recent period. In the last part of the sample, banks' equity premia declined, possibly as a reflection of banks' deleveraging processes. Results for most individual banks currently lie within the 8% to 10% range, i.e. broadly in line with estimates from surveys of financial sector practitioners (Chart B).²⁴

Chart C

National developments in banks' cost of equity diverged after 2008

Cost of bank equity in selected euro area countries

(Jan. 2000 – Mar. 2015; percentages)



Sources: Bloomberg, Thomson Reuters Datastream and ECB.

Notes: 10 banks are included in the German portfolio of banks, 18 in the French, 18 in the Italian and 10 in the Spanish. Cut-off date: February 2015.

profitability and limited progress in leverage ratios (see Chart 3.12), developments in the cost of bank equity continue to require close monitoring in terms of financial stability.

Diverging national developments in the cost of bank equity can be gauged by applying the CAPM to national portfolios of listed banks, weighting each bank by its market capitalisation. Prior to the global financial crisis, the banking sectors of the largest four euro area economies enjoyed similar levels of cost of equity. Following the peak observed after the collapse of Lehman Brothers in November 2008, the cost of equity diverged along country lines (Chart C), displaying considerable fragmentation in recent years. While signs of a gradual reversal to pre-crisis levels can be observed, it is hard to predict where a stable resting point for banks' cost of equity will lie. To the extent that reductions in bank leverage can contribute to containing bank risk and reducing the cost of equity, less-leveraged institutions may experience cheaper equity market access. Nevertheless, in the face of low banking sector

²³ Fama, E. and MacBeth, J., "Risk, Return, and Equilibrium: Empirical Tests", *Journal of Political Economy*, Vol. 81, No 3, 1973, pp. 607-636.

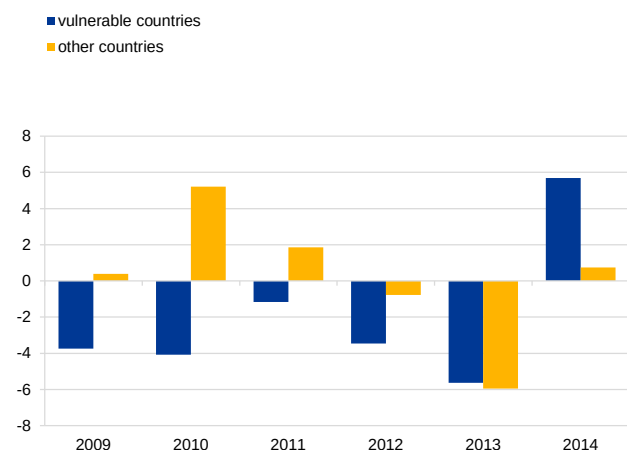
²⁴ The majority of respondents to the latest EBA risk assessment questionnaire (December 2014) reported cost of equity estimates in the range of 8-10%, while they reported a 10-12% range in all previous waves. These ranges, presented in Chart B as black squares, embrace a large part of the cross-sectional distribution of our estimates for individual banks.

Chart 3.3

Net interest income increased, particularly for banks in vulnerable countries...

Net interest income growth of euro area significant banking groups

(2009-2014; percentages; median growth rates)



Source: SNL Financial.

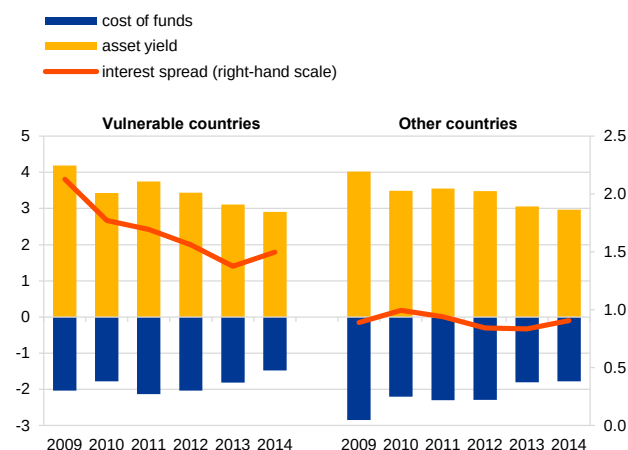
Notes: Vulnerable countries include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Based on publicly available data on SBGs.

Chart 3.4

... mainly on account of declining funding costs

Interest spread and its drivers for euro area significant banking groups

(2009-2014; percentages; median values)



Sources: SNL Financial and ECB calculations.

Notes: Vulnerable countries include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Based on publicly available data on SBGs.

Looking at the main drivers of bank profits, **operating income**, while still subdued, showed some improvement in 2014 as a whole. This was due mainly to an increase in **net interest income** (see Chart 3.3), in particular in vulnerable countries (median growth of 6%). This in turn could be attributed to the fact that funding costs declined

more rapidly than asset yields as banks in vulnerable countries benefited from a compression of sovereign bond yields and the resulting decreases in both deposit and wholesale funding costs (see Chart 3.4). At the same time, net interest income for banks in other countries increased only marginally.

Looking forward, further improvements in net interest income may be difficult to sustain in an environment of low interest rates and flat yield curves since associated declines in asset yields are less likely to be compensated for by a further fall in funding costs. In fact, data for a sub-sample of quarterly reporting SBGs indicate that, for the majority of these banks, net interest margins narrowed somewhat in the first quarter of 2015.

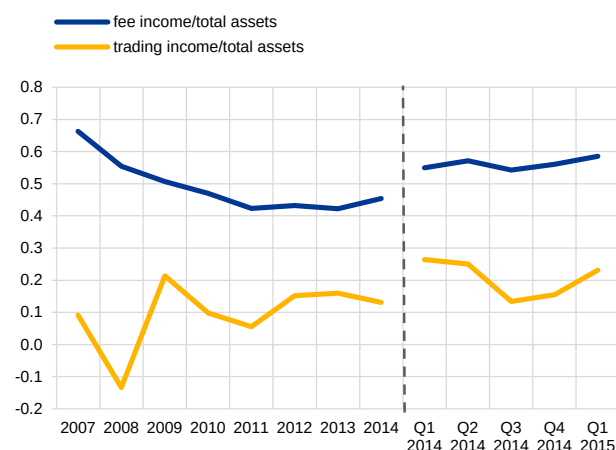
Against this background, there are signs that banks are stepping up their efforts to diversify income streams by increasing fee revenues. In fact, the median ratio of net **fee and commission income** to total assets for SBGs showed an increase in 2014 and data for a sub-sample of quarterly reporting SBGs suggest that this

Chart 3.5

Diverse developments in non-interest income in 2014, with an increase in fee income contrasting with a decrease in trading income

Ratios of net fee and commission income and trading income to total assets for significant banking groups in the euro area

(2007 – Q1 2015; percentages; median values)



Source: SNL Financial.

Notes: Based on publicly available data on SBGs. The right-hand panel of the chart shows annualised quarterly figures for SBGs that report on a quarterly basis.

improvement may have continued in the first quarter of 2015 (see Chart 3.5). A decomposition of fee income for a sub-sample of SBGs suggests that the improvement, at least for some banks, could be attributed to increasing asset management-related fees, possibly also reflecting these banks' active strategies of cross-selling between commercial banking and asset management units. At the same time, **trading income** decreased in the second half of 2014, and in the year as

a whole, due to subdued trading activity in particular in fixed income markets. However, data for a sub-sample of quarterly reporting SBGs show a rebound in trading income around the turn of the year (see Chart 3.5), with trading performance improving in fixed income and currency as well as in equity markets.

Overall, the median growth of euro area SBGs' operating income was over 2% in 2014 as a whole. However, profitability was not supported by broad-based improvements in **cost efficiency**. While a number of banks have announced, or are implementing, cost-cutting plans, progress has been moderate so far, with the median ratio of operating costs to total assets remaining broadly unchanged at 1.3%, year on year, in 2014.

Loan loss provisions continued to be a drag on bank profitability in the second half of 2014, although provisioning levels showed significant heterogeneity across banks. In particular, credit risk costs of banks in vulnerable countries remained at elevated levels against a weak macroeconomic backdrop (see Chart 3.6), while some of the increase in the fourth quarter of 2014 was related to value adjustments necessitated by the asset quality review (see Box 6). In other countries, provisioning costs remained stable in 2014, except for those of banks that booked large provisions on their foreign exposures, especially on those in troubled emerging market economies, and in central and eastern European (CEE) countries. Looking at more recent developments, data for a sub-sample of SBGs reporting quarterly results suggest some moderation in loan loss provisions in the first quarter of 2015.

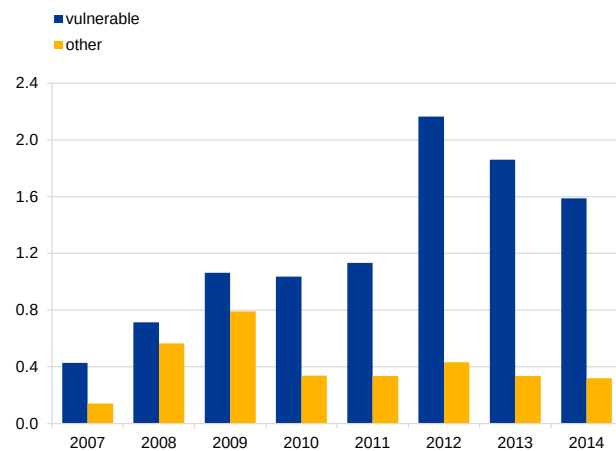
Taking a longer-term view, loan loss provisions tend to move together with GDP growth (see Chart 3.7), although empirical evidence also points to a delay in loan loss recognition by euro area banks in the early phase of the global financial crisis, particularly in vulnerable countries (see Box 6 in the May 2014 FSR).

Chart 3.6

Loan loss provisions remained elevated in vulnerable countries...

Loan loss provisions of euro area significant banking groups

(2007-2014; percentage of total loans; median values)



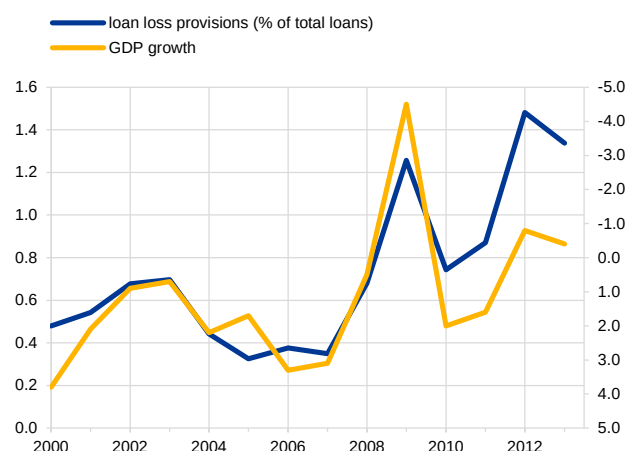
Source: SNL Financial.
Notes: Vulnerable countries include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Based on publicly available data on SBGs.

Chart 3.7

... reflecting strong cyclical patterns in bank provisioning

Relationship between euro area banks' loan loss provisions and GDP growth

(2000-2013; percentages; median values)



Sources: Bloomberg, SNL Financial and ECB calculations.
Notes: Based on publicly available data on SBGs. GDP growth is shown on an inverted scale.

Box 6

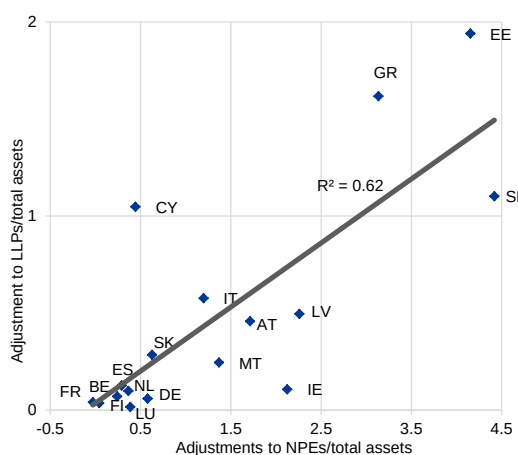
Evaluating the drivers of forbearance and underprovisioning

Chart A

Adjustments to non-performing exposures strongly correlated with adjustments to loan loss provisions

Scatter plot of normalised adjustments to NPEs and normalised adjustments to LLPs

(basis points)



Source: ECB.

Forbearance (or the renegotiation of a loan contract in the event that a borrower fails, or is likely to fail, to fulfil its obligations) is not captured on balance sheets and is therefore not straightforward to measure. It is closely related to underprovisioning, which – alongside forbearance – also includes insufficient provisioning for declared non-performing exposures (NPEs) as a main element.

The ECB's comprehensive assessment contributed to highlighting possible pockets of forbearance and underprovisioning. The results of the comprehensive assessment can be used as proxy variables for these concepts, to the extent that changes to NPEs act as a suitable proxy for forbearance, and the adjustments to loan loss provisions (LLPs) can be a measure of underprovisioning.²⁵ Chart A illustrates the connection between these two concepts.

Regression analysis using these two measures as endogenous variables can provide an insight into the main drivers of forbearance and underprovisioning. The regression analysis has to take into account specific features of these variables, namely potentially clustered deviations at the country level (via clustered standard errors) and truncation of the endogenous variables.²⁶ The analysis is conducted on variables normalised by bank size to make the measures comparable across banks.

The explanatory variables can be grouped as macroeconomic variables, indicators for the quality of banking supervision, measures of collateral valuation, balance sheet-based measures of bank profitability, balance sheet-based measures of bank weakness and market-based measures of bank weakness. Using this categorisation, the variables are aligned with commonly suspected drivers of underprovisioning and forbearance. While the endogenous variables were published in October 2014, the explanatory variables are lagged, referring to end of 2013 for balance sheet data, averages from 2011 to 2013 for macro-economic data and averages over 2013 for market based data.

²⁵ While the changes to NPEs and forbearance also include the results of the harmonisation of non-performing loan definitions, the asset quality review (AQR) adjustment to LLPs captures precisely the underprovisioning in European banks.

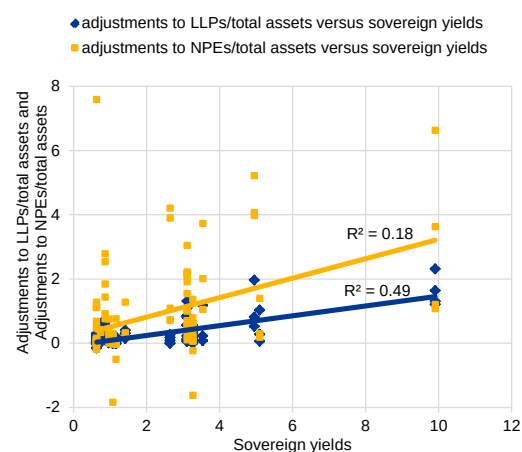
²⁶ The AQR adjustment to LLPs is taken to be non-negative and the adjustments to NPEs can also assume negative values. Therefore, Tobit methodology is used instead of ordinary least squares in the regressions involving the AQR adjustment to LLPs.

Chart B

Sovereign yields can be indicative of forbearance and underprovisioning in a country's banking sector

Scatter plot of sovereign yields, adjustments to NPEs and adjustments to LLPs

(x-axis in percentage points, y-axis in basis points)



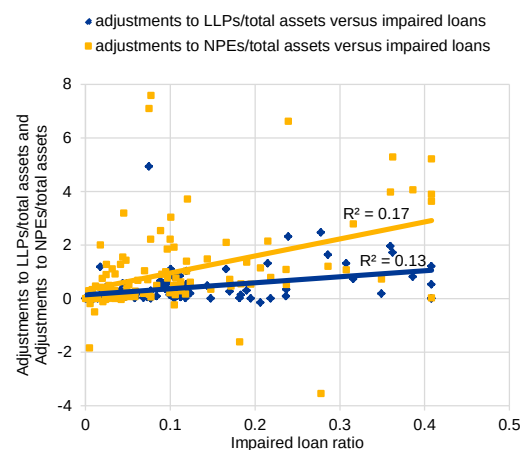
Sources: ECB and Bloomberg.

Chart C

Balance sheet-based measures of bank weakness contain significant information about forbearance and underprovisioning

Scatter plot of normalised adjustments to NPEs and normalised adjustments to LLPs

(y-axis in basis points)



Sources: ECB, SNL and Bankscope

Charts B, C and D illustrate the correlations between some of the explanatory variables with the highest univariate explanatory powers and the endogenous variables. High sovereign yields indicate weak backstops and a bad business environment for banks. Credit default swap (CDS) spreads reflect market perceptions of banks' weakness, while the impaired loan ratio is a key measure of the quality of the banks' loan books based on balance sheet information.

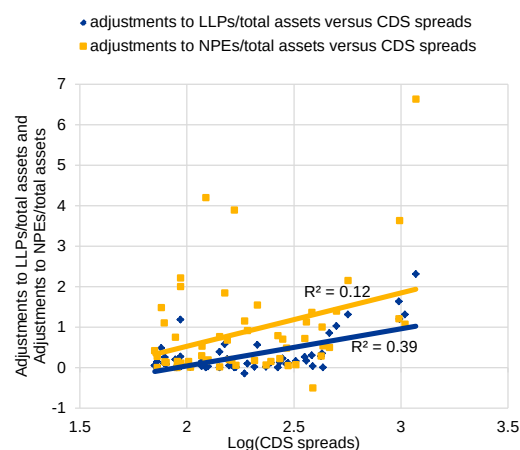
Multivariate regression analysis²⁷ confirms these relationships, revealing both their statistical and economic significance and robustness against different specifications. Overall, the empirical results suggest that weak macroeconomic conditions, moral hazard, a low valuation of collateral and individual bank weakness are the key drivers of forbearance and underprovisioning.

Chart D

Market-based measures of bank weakness can also draw attention to pockets of forbearance and underprovisioning

Scatter plot of CDS spreads, adjustments to NPEs and adjustments to LLPs

(CDS spreads measured in basis points, y-axis in basis points)



Sources: ECB and Bloomberg.

²⁷ The results of a detailed empirical analysis can be found in Homar, T., Kick, H. and Salleo, C., "What drives forbearance? Evidence from the ECB's comprehensive assessment", *Working Paper Series*, ECB (forthcoming).

Putting these results in a financial stability context, forbearance may be warranted for individual counterparties in the event of temporary liquidity-related problems. But it is not appropriate if: (i) it is used to deal with structural issues such as credit-related problems; or (ii) it becomes systemic, as widespread use entails externalities in the form of adverse selection. Likewise, underprovisioning can avoid excessive pro-cyclicality of capital requirements in a downturn; however, if widespread, it contributes to balance sheet opaqueness and ultimately undermines confidence in the banking sector as a whole. The findings here can provide guidance on where to expect pockets of forbearance and underprovisioning, based on publicly available information.

Looking ahead, loan loss provisions are expected to fall in 2015 and beyond, but the normalisation of the cost of credit risk and its impact on overall profitability will depend very much on the pace of economic recovery. It should be noted that in the United States, much of the improvement in bank profits between 2009 and 2013 was due to a substantial decline in loan loss provisions amid improving macroeconomic conditions (see Special Feature B).

Looking beyond the impact of cyclical developments, the recovery of euro area bank profitability will also be dependent on **structural factors**. For instance, the tightening of corporate lending spreads (see Chart S.3.6) suggests that competition is increasing, or remains intense, in banking markets. In some cases, there are signs that overcapacity could hinder the recovery of profitability as weaker/less efficient banks distort competition, thereby making it difficult for other banks to reprice loans. In fact, there is some empirical evidence that EU/euro area banks operating in less concentrated markets tended to be less profitable in the period between 1991 and 2013 (see Special Feature B). This suggests that consolidation in some of the least concentrated banking markets in the euro area could bring some benefits for profitability through increasing cost and/or revenue synergies. In this respect, initiatives taken at a national level to improve corporate governance in some segments of the euro area banking sector – such as the proposed reform of populari banks in Italy – could help create a more favourable environment for mergers.

Another factor that will influence banks' return to a path of sustainable profit is the speed at which they adapt their **business models** to new realities and regulatory requirements. Before the crisis, euro area banks exhibited a higher leverage, on average, than their global peers – although some of this was related to prevailing institutional settings such as mortgage balance sheet retention and the degree to which corporate finance is bank-based (rather than market-based). Nevertheless, an implication has been that banks' adjustment to higher capital requirements has contributed to lowering their return on equity. Efforts to adjust bank business models continue, although progress has remained uneven across banks. In response to market pressures, but also as a consequence of increasing (regulatory) costs of complexity, some banks are endeavouring to rationalise their strategies by focusing on business activities/geographical regions in which they have sufficient economies of scale and better profit margins.

In this respect, banks also made further progress in divesting/running off assets separated in their **non-core units** in 2014. That said, this process is far from

complete and losses booked by non-core units still weighed on overall profitability and reduced the pre-tax profits of some large and complex banking groups (LCBGs) by 40-60% in 2014. In a similar vein, the retrenchment in **foreign operations** continued in 2014, albeit at a slowing pace, as some banks sought selectively to increase their foreign presence, possibly also reflecting limited growth opportunities

in domestic markets. However, taking a longer-term view, for a sub-sample of SBGs that report on the geographical breakdown of their loan portfolios, the median share of non-domestic loans decreased from 32% in 2007 to 27% in 2014.

The deterioration of the **asset quality** of euro area banks slowed in the second half of 2014. While loan quality trends diverged across vulnerable countries, there are signs of improvement – ranging from a slower increase in non-performing loans (Italy, Portugal and Cyprus) to a reversal of worsening asset quality (Spain and Ireland). While domestic macroeconomic conditions are the main driver of asset quality for most banks, mainly affecting exposures to corporates and to small and medium-sized enterprises (SMEs), some cross-border banking groups in the euro area remain exposed to the potential resurfacing of emerging market stress. The coverage of non-performing loans (NPLs) by loan loss reserves remained broadly unchanged on average in 2014 (see Chart 3.8), although this hides diverging trends across banks.

While banks in some countries (e.g. Ireland) made substantial progress in writing off and/or disposing of non-performing loans, the average write-off rate remains rather moderate at 0.6% (see Chart 3.9), and lags well behind that experienced in the United States, which peaked at 3.1% in 2009.

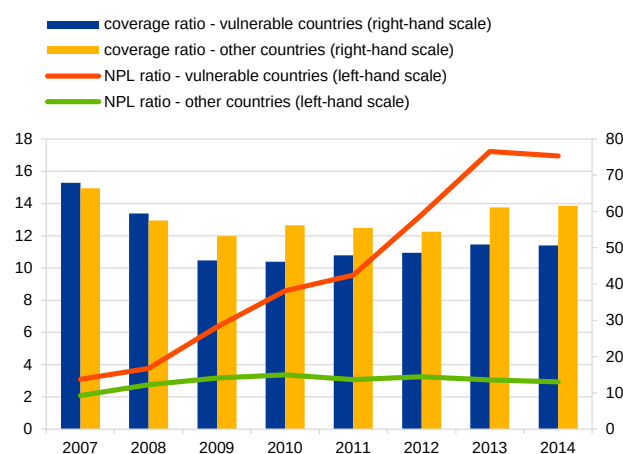
Notwithstanding the slowdown or reversal of NPL inflows, the large stock of **legacy problem assets** remains a burden on some banking sectors and may impair their ability to restore lending (for details on NPL-related issues, see Special Feature C). For instance, the ratio of net NPLs to equity remains above 50% for around two-fifths of the euro area SBGs, leaving these institutions more exposed to possible further increases in loan losses. NPLs also act as a drag on profits – as they do not accrue interest income, while dealing with assets entails operational costs – so that banks with higher NPLs tend to charge higher interest rates on loans. Previous crisis episodes

Chart 3.8

Non-performing loan ratios continued to increase in vulnerable countries, albeit at a slowing pace...

Non-performing (impaired) loan and coverage ratios of euro area significant banking groups

(2007-2014; percentages; median values)



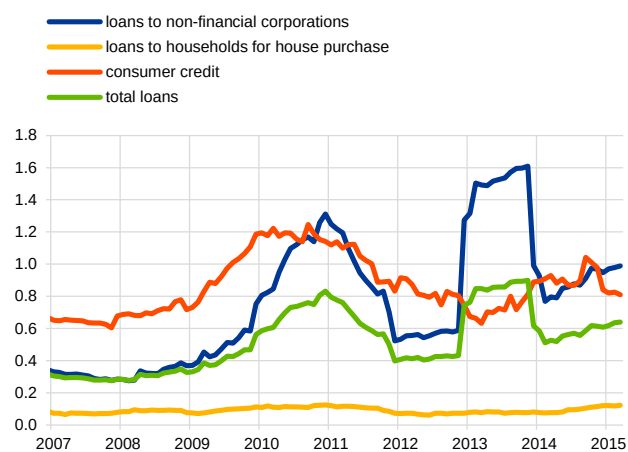
Source: SNL Financial.
Notes: The coverage ratio is defined as the ratio of loan loss reserves to non-performing (impaired) loans. Vulnerable countries include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Based on publicly available data on SBGs.

Chart 3.9

... but write-off ratios still indicate only moderate progress in resolving problem assets

Write-off rates on loans of euro area monetary financial institutions to the non-financial private sector

(Jan. 2007 – Mar. 2015; percentages)



Source: ECB.

suggest that timely NPL resolution is crucial for restoring credit growth.

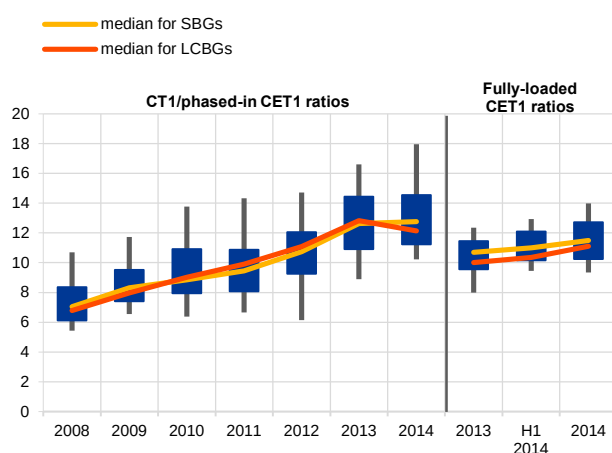
In some countries, the disposal of NPLs is also being hindered by the lengthy foreclosure procedures that lead to a wide bid-ask spread between banks and potential buyers of distressed assets. While steps have been taken to improve the legal framework governing the resolution of NPLs in several countries, it may take considerable time before these changes take full effect.

Chart 3.10

Risk-weighted capital ratios remained stable or increased on a fully loaded basis...

Core Tier 1/common equity Tier 1 capital ratios of significant banking groups in the euro area

(2008-2014; percentages; 10th and 90th percentile and interquartile range distribution across SBGs)



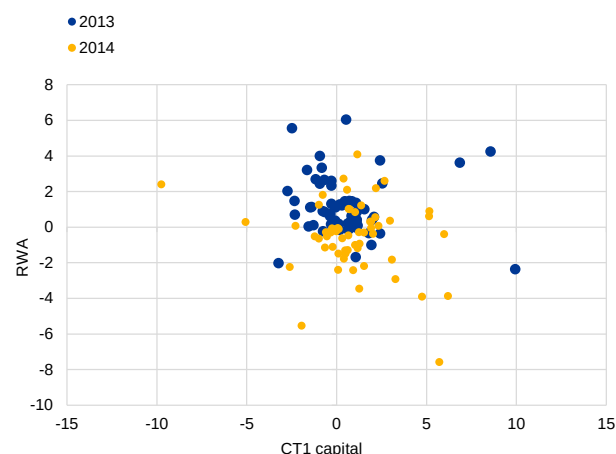
Source: SNL Financial.
Note: Based on publicly available data on SBGs.

Chart 3.11

... with capital increases showing a higher contribution than risk-weighted assets changes in 2014

Contribution of changes in capital and risk-weighted assets to phased-in common equity Tier 1 capital ratios

(2012-2014; percentage points)



Sources: SNL Financial and ECB calculations.
Notes: Based on publicly available data on SBGs. Changes in risk-weighted assets are shown with negative sign, i.e. a decline in risk-weighted asset indicates a positive contribution to the capital ratios.

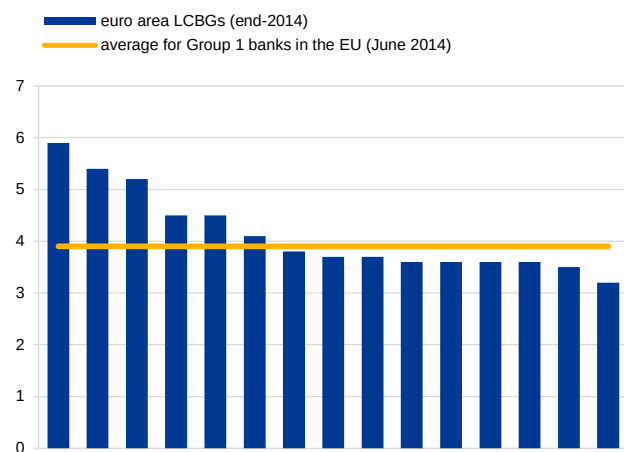
Euro area banks continued to strengthen their **solvency** positions in the second half of 2014. As a result, the median phased-in (transitional) common equity Tier 1 (CET1) capital ratio of SBGs rose to 12.8%, from 12% in mid-2014. Similarly, fully loaded Basel III CET1 capital ratios of SBGs also improved in the second half of 2014, rising from 11% in mid-2014 to 11.5% at the end of the year (see Chart 3.10). The strategies to improve capital ratios differed somewhat across banks, but the general pattern shifted towards more capital-raising, away from reductions of risk-weighted assets (see Chart 3.11). Following an average increase in risk-weighted assets in the first quarter of 2014, largely due to the implementation of the rules set out in the Capital Requirements Directive (CRD IV) and/or the Capital Requirements Regulation (CRR) as of 1 January 2014, risk-weighted assets declined in the second half of the year, thereby also contributing to improving capital ratios in this period. More recently, some banks have completed large-scale capital-raising exercises or announced plans to improve their capital ratios further in the coming months, in part also to address capital shortfalls identified in the ECB's comprehensive assessment exercise.

Chart 3.12

Leverage ratios also improved, although further progress may be needed in the case of some LCBGs

Fully loaded Basel III leverage ratios for selected euro area LCBGs

(end-2014; percentages)



Source: SNL Financial.

Notes: Based on publicly available data on LCBGs. The horizontal line shows the average for 40 Group 1 banks subject to the Basel III monitoring exercise of the EBA. Group 1 banks are those with Tier 1 capital in excess of €3 billion and are internationally active.

Mirroring developments in risk-weighted capital ratios, euro area banks' leverage ratios also continued to improve in 2014. The median fully loaded Basel III leverage ratio for LCBGs stood at 3.7% at the end of 2014, although it varied somewhat across institutions (see Chart 3.12).

Notwithstanding progress in the strengthening of capital positions, regulatory requirements for bank capital continue to evolve, which is likely to have implications for banks' capital management and business planning in the period ahead. First, concerns remain with respect to the consistency of risk-weighted asset calculations made using the internal ratings-based method. This has caused regulators to consider policy proposals in this area, and work by the Basel Committee on reducing variability in risk-weighted assets continues (see Section 3.3.2).

Second, several national differences exist in the euro area with regard to the current definition of regulatory capital, not least due to different phasing-in rules for certain capital deductions, including those related to

goodwill and other intangible assets, deferred tax assets (DTAs) or holdings of participations in other financial sector entities. Nevertheless, legislative changes in some countries (Greece, Italy, Portugal and Spain) allow certain DTAs to be converted into assets that are guaranteed by the government, i.e. deferred tax credits (DTCs), which do not need to be deducted from CET1 capital. Such legislative initiatives may stem from factors specific to these countries – such as a less favourable tax treatment of loan impairment charges, as compared with that in the majority of other euro area countries where loan loss provisions are immediately deductible from taxes.

Third, while the implementation of the new regulatory framework is nearing completion in most areas, some elements have yet to be finalised, including the calibration of requirements for the leverage ratio and the total loss-absorption capacity. Overall, further progress in all of the areas of capital regulation highlighted above is of key importance for the further strengthening of banks' resilience. At the same time, the evolving regulatory requirements may have implications for banks' capital management and could incentivise some banks to keep higher buffers, given the remaining uncertainty, which in turn could lead to some cautiousness in their risk-taking behaviour.

Credit risk and bank lending conditions

Credit risk conditions for the euro area banking sector have remained broadly unchanged since the finalisation of the November 2014 FSR. The economic recovery

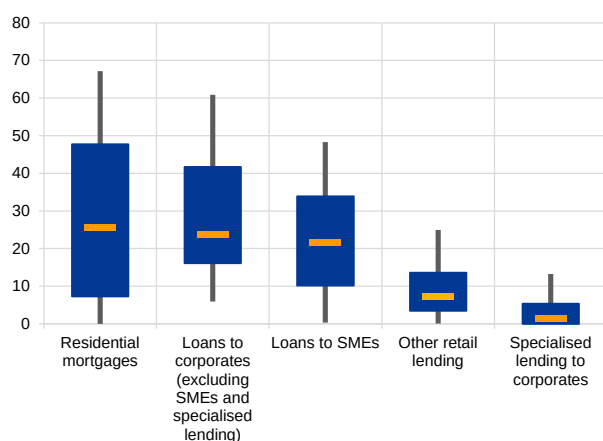
is progressing at a moderate pace against the background of the continued risk of a prolonged period of low nominal growth. This implies heightened income and earnings risks for households and non-financial corporations (NFCs), which – coupled with legacy balance sheet issues and ongoing corrections in the property markets of some countries – have a negative impact on borrowers' debt servicing capacities.

Chart 3.13

Credit risk exposures of euro area SGBs are concentrated in corporate, SME and residential property segments...

Breakdown of euro area SGBs' credit exposures by type

(end-2013; percentage of total exposures; median, 10th and 90th percentile and interquartile range distribution across SGBs)



Source: EBA.

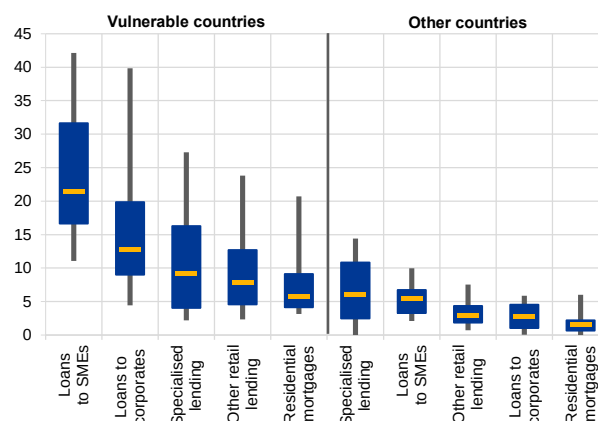
Notes: Specialised lending includes project financing, commercial real estate loans and other forms of asset-based finance (e.g. shipping loans). Total exposure is the sum of corporate and retail exposures (i.e. it excludes equity, securitisation and other non-credit obligation assets).

Chart 3.14

... with SME loan books accounting for most defaulted exposures, in particular in vulnerable countries

Share of defaulted exposures per type of credit exposure

(end-2013; percentage of total exposures; median, 10th and 90th percentile and interquartile range distribution across SGBs)



Source: EBA.

Note: Specialised lending includes project financing, commercial real estate loans and other forms of asset-based finance (e.g. shipping loans).

Data for euro area SGBs show that **credit risk exposures** are, on average, accounted for roughly equally by residential mortgages, loans to non-financial corporations (excluding SMEs) and loans to SMEs. However, the shares vary significantly across banks, due to their different specialisations (see Chart 3.13). Loan quality in these segments likewise varies greatly across banks in the euro area, with the median share of defaulted SME exposures in vulnerable and other countries standing at 21% and 5% respectively at end-2013 (see Chart 3.14).

For some euro area banks, credit risks also emanate from their significant **cross-border exposures**. Indeed, some SGBs remain highly exposed to emerging market economies (EMEs), with the ratio of their EME-related exposures to common equity exceeding 300%, in particular to countries in “developing Europe”. Against the background of ongoing geopolitical tensions, a few euro area banks with exposures to the most vulnerable EMEs (including Russia and Ukraine) incurred high credit losses on these exposures in 2014, and face the risk of further asset quality deterioration in the period ahead.

Turning to bank lending conditions, the results of the ECB's bank lending survey of April 2015 suggest continued signs of easing **credit standards**, although with some differences across different loan types (see Chart 3.15). In fact, the further net easing of credit standards for corporate loans and consumer credit contrasted with a slight net tightening of those for housing loans. With regard to differences across firms of different size, credit standards have eased more strongly for SMEs than for large firms. Looking at country-level developments, the easing of credit standards for non-financial corporations could be observed in most of the largest euro area economies, while credit conditions/standards have become more diverse for housing loans.

Credit demand was reported to have increased further, albeit to varying degrees across different loan types, with a continued strong increase in demand for housing loans contrasting with an only moderate increase in demand for corporate loans.

Overall, these survey results provide tentative signs of a possible turnaround in the credit cycle. It should be noted, however, that despite substantial improvements, credit standards for loans to non-financial corporations are still tight by historical standards.

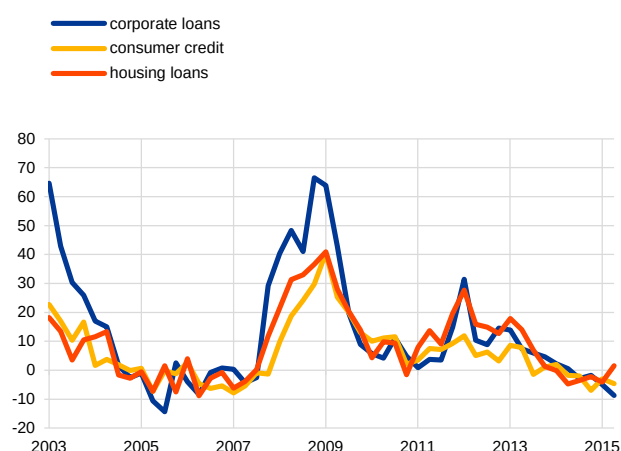
Despite continued signs of recovery, **bank lending to the non-financial private sector** in the euro area remained muted. Lending to non-financial corporations continued to contract, albeit at a gradually slowing pace (see Chart 3.16). By contrast, lending to households has remained broadly stable since the last FSR. Developments differed significantly across the euro area (see Chart S.1.14), where continued significant declines in lending to the non-financial private sector in more vulnerable countries (e.g. Greece, Ireland, Portugal and Spain) contrasted with a moderate expansion of lending in other countries, such as Germany or France.

Chart 3.15

Lending standards have eased further for corporate loans

Credit standards for loans to the non-financial private sector

(Q1 2003 – Q1 2015; weighted net percentages)



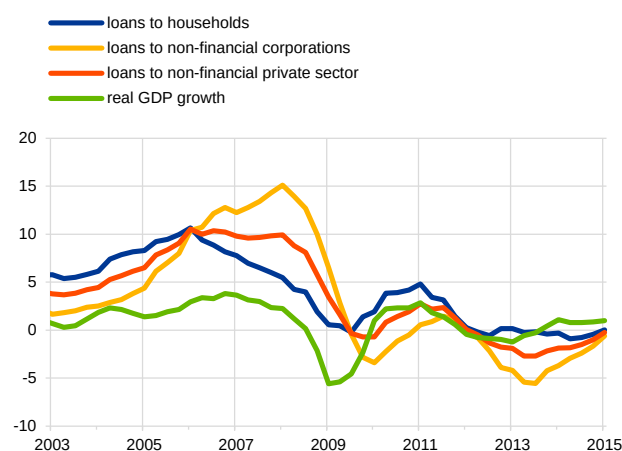
Source: ECB.

Chart 3.16

Lending to the non-financial private sector continues to contract, but at a slowing pace

GDP growth and credit growth to households and NFCs in the euro area

(Q1 2003 – Q1 2015; annual percentage changes)



Sources: ECB and Eurostat.

At the same time, **legacy balance sheet issues** continue to be a challenge in several countries. While write-off rates on monetary financial institutions' loans to non-financial corporations remained on an upward path, with those on housing loans gradually increasing as well, albeit from a far lower level, the pace of writing off bad loans remains moderate, on average, with significant differences across countries. In fact, write-offs throughout 2014 were relatively modest in Italy and Portugal, which stood in contrast with significant increases in Ireland and, to a lesser extent, Spain.

Overall, this highlights the need for a more pro-active stance of both banks and authorities in dealing with the issue of the large stock of NPLs (see also Special Feature C). While the asset quality review/comprehensive assessment has helped dispel doubts regarding the soundness of banks' balance sheets, further steps are necessary to ensure that the legal framework in place facilitates a timely and low-cost resolution of non-performing loans and enables a smooth interaction between banks and their distressed borrowers. Regarding the possible implications of NPL resolution, if managed carefully, it can create significant benefits in terms of freeing bank capital and boosting credit expansion. At the same time, NPL disposals should be carefully calibrated to avoid a significant (temporary) reduction in capital, for instance, by setting the price for disposals too low.

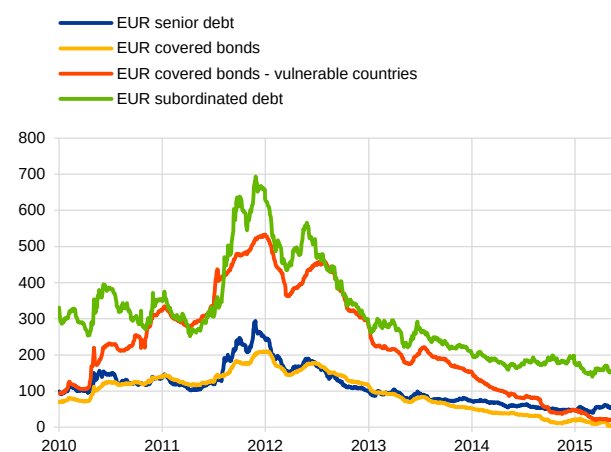
Funding liquidity risk

Chart 3.17

Bank debt spreads remained low

Spreads on banks' senior debt, subordinated debt and covered bonds

(Jan. 2010 – May 2015; basis points)



Sources: ECB and Markit.

Notes: Covered bond spreads for vulnerable countries are calculated as averages for Ireland, Italy, Portugal and Spain.

Market-based bank funding conditions have

remained very favourable, with spreads continuing to stand at, or close to, multi-year lows in most bank debt markets. This notwithstanding, spreads on both senior unsecured and subordinated debt have edged up since early March, due to the resurfacing of tensions around Greece (see Chart 3.17). At the same time, spreads on covered bonds issued by banks in vulnerable countries narrowed further, maintaining the positive pricing momentum triggered by the ECB's announcement of its third covered bond purchase programme (CBPP3).

Bank **debt issuance** has slowed in gross terms since the third quarter of 2014 (see Chart 3.18), primarily due to a drop in senior debt issuance. This can partly be attributed to lower refinancing needs and the replacement of some of the senior debt with long-dated central bank borrowing through the targeted longer-term refinancing operations (TLTROs). At the same time, covered bond issuance picked up somewhat, also

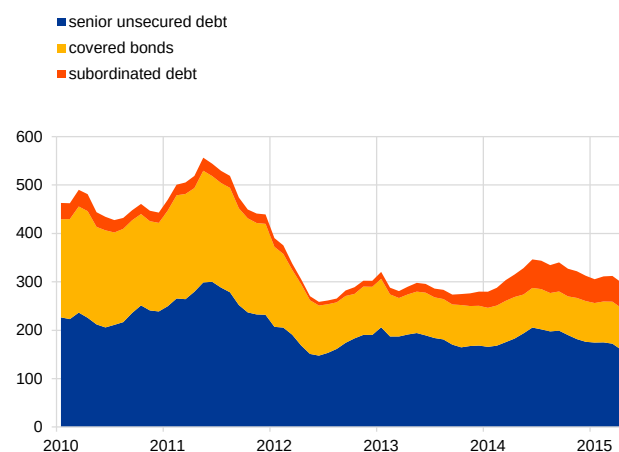
supported by the ECB's CBPP3, and the benign market environment also allowed issuers to lock in very low yields for longer durations. This is evidenced by the lengthening of the average maturity of newly issued covered bonds since the fourth quarter of 2014 for issuers from both vulnerable and other euro area countries (see Chart 3.19).

Chart 3.18

Debt issuance by euro area banks has slowed somewhat since mid-2014

Gross issuance of medium and long-term debt by euro area banks

(Jan. 2010 – Apr. 2015; 12-month flows; EUR billions)



Source: Dealogic.

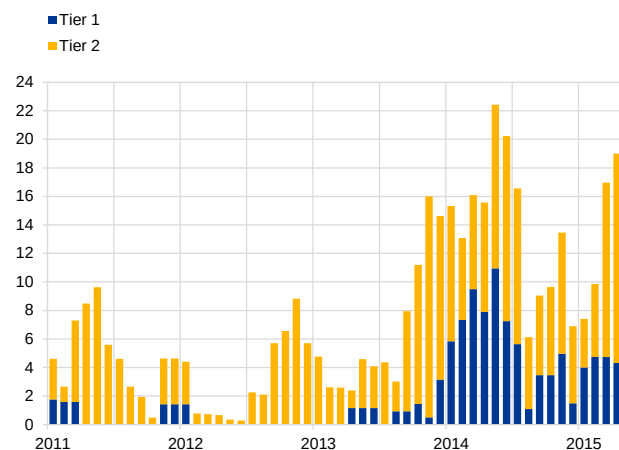
Note: Excludes retained deals and government-guaranteed issuance.

Chart 3.20

Subordinated debt issuance remains strong, driven by banks' efforts to adapt to new regulatory requirements and strong investor demand

Issuance of subordinated debt by euro area banks

(Jan. 2011 – Apr. 2015; three-month moving sum; EUR billions)



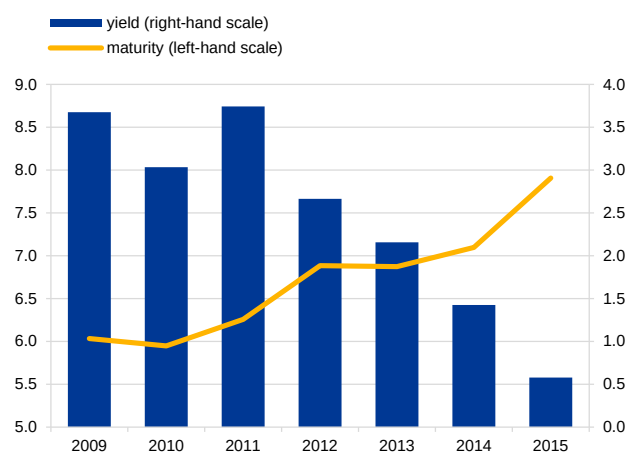
Source: Dealogic.

Chart 3.19

Banks continue to lengthen the maturity of new covered bond issues in order to benefit from low funding costs

Average maturity and yield of covered bonds issued by euro area banks

(2009 – May 2015; years; percentages)



Source: Dealogic.

Notes: Based on non-retained issuance with a deal value of at least €500 million. Figures for 2015 refer to the period between January and May.

At the same time, subordinated debt issuance has remained robust as banks are stepping up their efforts to adapt their funding structures to new regulatory requirements, which was supported by strong investor demand for higher-yielding bank debt. The composition of new subordinated debt issuance has shifted towards Tier 2 instruments (see Chart 3.20), partly in response to total loss-absorbing capital (TLAC) requirements. The issuance of additional Tier 1 capital instruments also recovered in the first quarter of the year, although it remained below the level recorded for the same period last year.

Spreads have also tightened in the markets for asset-backed securities (ABSs) after the launch of the ECB's asset-backed securities purchase programme (ABSP), including those for securitisations in vulnerable countries. At the same time, issuance of ABSs by euro area banks remains moderate, with non-retained issuance standing at €11 billion until mid-May, which was, however, broadly in line with the average

issuance volume over the same period in the last five years.

Turning to **structural changes in bank funding**, the shift away from wholesale funding towards deposit funding continued with an acceleration of deposit growth since the last quarter of 2014 that was accompanied by further negative net flows of

wholesale funding (see Chart 3.21), including net redemptions of debt securities. Deposits increased mainly in core countries over the past six months, while they increased only slightly in the vulnerable countries. At the same time, reliance on Eurosystem funding has declined somewhat since late 2014 (continuing the trend since early 2013) as new borrowing through TLTROs was more than offset by final repayments of funds raised through the three-year LTROs. Funding difficulties in Greece had no negative repercussions in other vulnerable countries where average deposit growth turned positive in early 2015, reaching 1.9% in February.

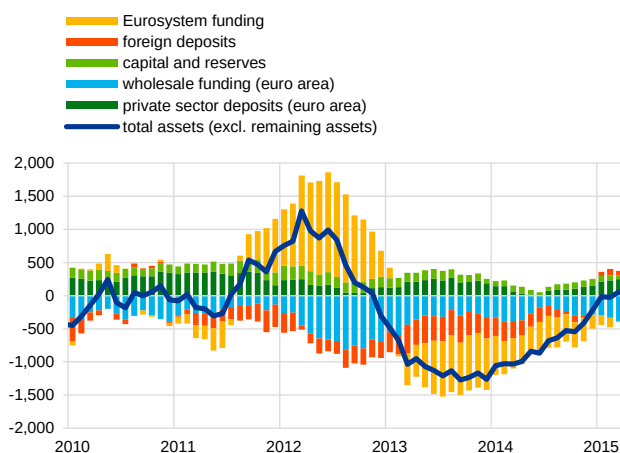
Structural funding vulnerabilities abated further, as deposit growth continued to outpace loan growth for most euro area SGBs. As a result, the median loan-to-deposit ratio of SGBs declined to 114% at the end of 2014 from 117% a year earlier (see Chart 3.22). This improvement is consistent with the progress made by European banks in meeting new Basel III requirements on stable funding. In fact, according to the EBA's latest Basel III monitoring report, in June 2014 about 67% of the large, internationally active banks and 85% of the other EU banks subject to the monitoring exercise already met the required minimum net stable funding ratio (NSFR) of 100%. That said, the dispersion of structural funding ratios (including loan-to-deposit ratios) remains significant even if it has narrowed since mid-2014.

Chart 3.21

Deposit growth has picked up since mid-2014, while wholesale funding continued to decline...

Twelve-month flows in main liabilities of the euro area banking sector

(2010 – Mar. 2015; EUR billions)



Source: ECB.

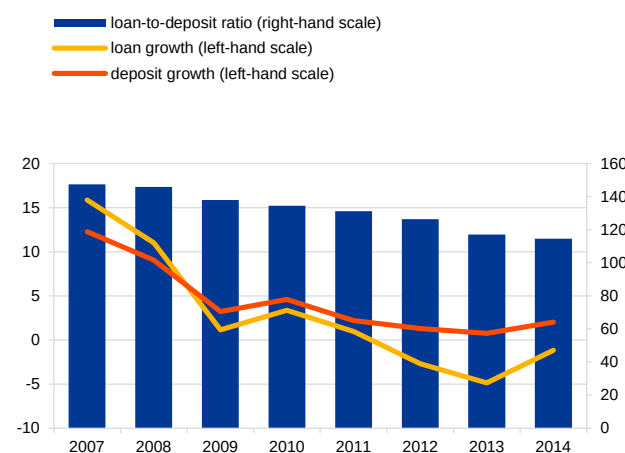
Note: Excludes retained deals and government-guaranteed issuance.

Chart 3.22

... resulting in a reduction of structural funding vulnerabilities

Loan and deposit growth and the loan-to-deposit ratio of euro area SGBs

(2007-2014; percentages; median values)



Source: SNL Financial.

Euro area banks also continued to build up **liquidity buffers**, thus making steady progress in meeting regulatory liquidity requirements. According to the latest Basel III monitoring report, 82% of the EU banks subject to the monitoring exercise showed a liquidity coverage ratio (LCR) of more than 100% in June 2014, while the overall (gross) shortfall in relation to the 100% threshold dropped to €115 billion, from €154 billion at the end of 2013. In addition to the impact of the recalibration of the LCR framework, this progress could be attributed to banks' structural adjustments on both

the asset and the liability side, as represented by an increase in high-quality liquid assets (including government bonds) and a decrease of net outflows of short-term funding respectively.

Looking at longer-term funding challenges, the implementation of **bail-in rules** as from 2016 and the draft TLAC proposal put forward by the Financial Stability Board (FSB) are also shaping banks' funding strategies. With regard to potential implications of bail-ins, rating agencies have published their revised methodologies to account for the reduction in systemic support, resulting in downgrades of some banks. Where future TLAC requirements for G-SIBs are concerned, based on current FSB proposals, a particular challenge confronting euro area banks is that structural subordination (i.e. senior debt issued by holding companies) does not seem to be a feasible option, as is the case for US, UK and Swiss banks that have holding companies, whereas statutory subordination in the case of euro area banks is limited by the principle of "no creditor worse off" set out in the Bank Recovery and Resolution Directive (BRRD).²⁸ Overall, once the FSB's proposal has been finalised, addressing TLAC requirements will be an important challenge for euro area G-SIBs in coming years, with possible implications for profitability via increased funding costs.

Market and operational risks

Looking at the main sources of **market risk**, euro area banks remain most exposed to adverse movements in interest rates and/or credit spreads, given the composition of their securities portfolios. Banks' **interest rate risk** has remained material against the background of high exposures to debt instruments, in particular sovereign debt. Since the finalisation of the November 2014 FSR, the slope of the euro area government bond yield curve has remained broadly unchanged, due to the significant yield increase at the long end of the curve since mid-April (see Chart S.2.5). Against this backdrop, euro area banks remain vulnerable to a potential reassessment of risk premia in global markets, in particular through their direct exposures to higher-yielding debt instruments, via possible valuation losses on their sovereign bond exposures, depending on the duration and accounting treatment of these portfolios, as well as on the extent to which their positions are hedged.

Looking at banks' **interest rate risk exposures**, the median share of debt securities in SBGs' assets stood at 18% at end-2014, broadly unchanged from a year earlier (see Chart 3.23). Banks' reliance on interest income from debt securities has been on an upward trend since 2008. In fact, the median share of interest income earned on debt securities increased from 17% in 2008 to 23% in 2014, with around one-tenth of the SBGs earning at least 50% of their interest income from debt securities. Regarding the composition of debt holdings, bonds issued by euro area sovereigns account for around 6% of the total assets of euro area monetary financial institutions (MFIs), albeit with significant dispersion across countries. In fact, sovereign bond

²⁸ National legislation such as that proposed in Germany can provide for a statutory subordination of senior unsecured debt instruments relative to other senior liabilities.

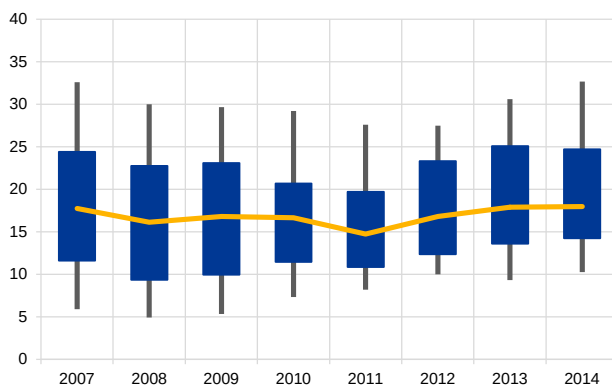
holdings, expressed as a percentage of total assets, remain well above their pre-crisis levels in some euro area countries (see Chart 3.24), leaving banks in those countries vulnerable to adverse movements in sovereign yields. With respect to other fixed income exposures, euro area MFIs' holdings of euro area non-financial corporate debt remained stable at 0.5% of total assets in the second half of 2014, but were still more than 40% below the peak level recorded in mid-2008. This suggests that the direct impact of a sharp adjustment of risk premia on euro area corporate bonds would be contained at the aggregate level. However, some banks with material exposures to high-yield or corporate bonds of EMEs could be more negatively affected in such a scenario.

Chart 3.23

Bond market exposures remain stable, but vary significantly across banks...

Debt holdings of euro area SBGs

(2007-2014; percentage of total assets; median, 10th and 90th percentile and interquartile range distribution across SBGs)



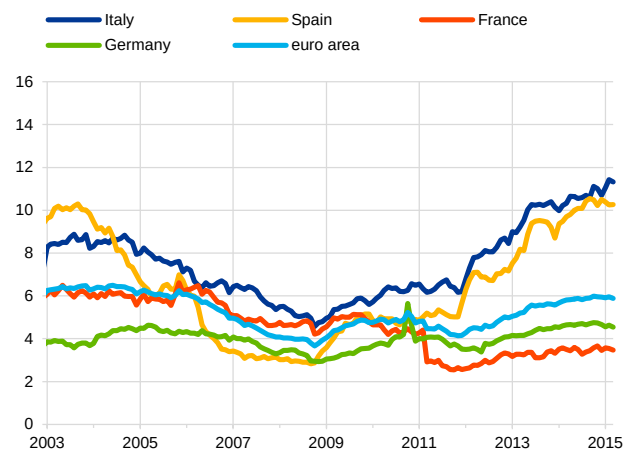
Sources: SNL Financial and ECB calculations.
Note: Based on publicly available data on SBGs.

Chart 3.24

... with significant cross-country dispersion in sovereign bond holdings

MFIs' holdings of sovereign debt in selected euro area countries

(Jan. 2003 – Mar. 2015; percentage of total assets)



Sources: SNL Financial and ECB calculations.
Note: Based on publicly available data on SBGs.

Euro area banks' **exposures to equity markets** remained contained, on average, with the median share of SBGs' equity holdings standing just below 1% at end-2014. Significant heterogeneity across banks of different size remains, with some LCBGs having increased their exposures to this asset class since the end of 2012. This could be related, in part, to the fact that low equity market volatility tends to compress backward-looking risk measures, such as the value at risk (VaR), as illustrated by the broadly stable or decreasing equity VaRs of large banks in 2014, thereby inducing some banks to increase their exposures.

Regarding **operational risks**, information technology-related risks are increasingly moving into the focus of both banks and supervisors. Banks have to deal with an increased vulnerability to higher-impact IT-related disruptions, given the wider use of information technology in retail payment systems (mobile and online banking) and the increasingly complex and interconnected systems of institutions. At the same time, the risks of cyber attacks are on the rise, given that cyber threats are becoming

more complex and intense. In fact, an EBA survey found that most banks see the increased sophistication and complexity of these threats as a major challenge, and are taking actions that include increased spending on cyber security and resilience, as well as the strengthening of governance and business continuity plans. Similarly, supervisors are stepping up their efforts to address cyber security concerns by requiring institutions to reinforce IT controls and audits, carrying out targeted on-site inspections of IT security systems or initiating cyber security tests.

3.1.2 Euro area insurance sector: lower yields on investment create headwind for earnings

The prevailing low-yield environment poses a significant challenge for some insurance companies' profitability over the medium term, with the potential to erode capital positions in the long run. The impact of the low interest rate environment is mostly relevant for life insurers and varies across both jurisdictions and companies, depending on the business mix. This relates mainly to interest rate sensitivity as a consequence of a combination of (i) asset/liability duration gaps, (ii) long-term investment return guarantees/policyholder bonuses and (iii) a lack of policy diversification/surrender penalties.

Life insurers offering relatively high minimum guarantees²⁹ – as holds true of many firms in central and northern Europe – have faced the strongest headwinds in the environment of low returns on the fixed income assets at the heart of their balance sheets. On the other hand, non-life insurers appear to be focusing increasingly on pricing, thereby reducing their dependence on investment returns. The low interest rate environment is also inducing insurers to take more risks so as to maintain returns, thereby contributing to the general trend of a search for yield. For example, there is evidence of more infrastructure financing, and of shifts towards higher-yield but lower-quality bonds, in fixed income investment portfolios.

Challenges to the sector were underscored by mixed performance in the 2014 stress test undertaken by the European Insurance and Occupational Pensions Authority (EIOPA), which concluded that in the medium to long term, a continuation of the current low (or lower) yield conditions exposes some insurers to the risk of not meeting promises to policyholders. Clearly, euro area insurers are continuing to adjust to such challenges, as well as to the common risk-sensitive and market-consistent regime under Solvency II.

Financial condition of large insurers³⁰

Large euro area insurance corporations continued to report healthy **profitability**, supported by buoyant financial markets, asset re-risking, generalised cost-cutting

²⁹ Minimum guarantees are often set by governments and regulators.

³⁰ The analysis is based on a varying sample of 21 listed insurers and reinsurers with total combined assets of about €4.9 trillion in 2014, which represent around 78% of the assets in the euro area insurance sector. Quarterly data were only available for a sub-sample of these insurers.

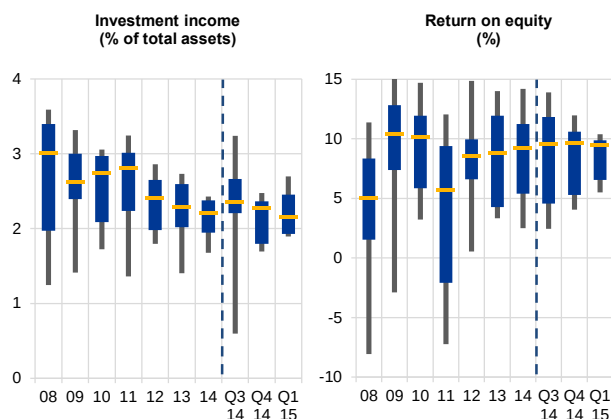
throughout the industry and solid premium growth of both life and non-life insurers in the last quarter of 2014 and the first quarter of 2015 (see Chart 3.25, Chart 3.26 and Chart S3.22 in the statistical annex). On the life insurance side, while low economic growth has traditionally hampered activity in this segment, such pressures may be mitigated by demand for retirement, savings and health solutions also during economic downturns. Indeed, growth in life premiums remains positive overall, albeit in a context of substantial country fragmentation. On the non-life insurance side, premiums – mainly personal property and motor insurance – also remained stable. In general, non-life premiums are more stable than life premiums as many types of non-life insurance are mandatory. Overall premium growth of globally active insurers also benefited from positive business developments in emerging markets.

Chart 3.25

Investment income suffers from low interest rates, but profitability remains stable...

Investment income and return on equity for a sample of large euro area insurers

(2008 – Q1 2015; percentages; 10th and 90th percentiles, interquartile distribution and median)



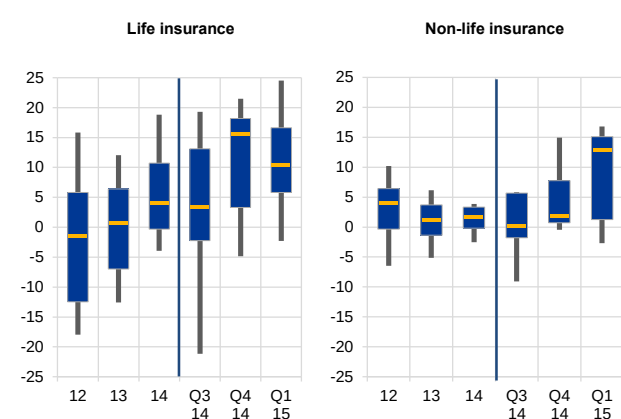
Sources: Bloomberg, individual institutions' financial reports and ECB calculations.
Notes: Investment income excludes unrealised gains and losses.

Chart 3.26

... supported by buoyant financial markets and solid underwriting performance in recent quarters

Growth of gross premiums written for a sample of large euro area insurers

(2012 – Q1 2015; percentage, 10th and 90th percentiles, interquartile distribution and median)



Sources: Bloomberg, individual institutions' financial reports and ECB calculations.

In the absence of large-scale loss events, combined ratios (i.e. incurred losses and expenses as a proportion of premiums earned) remained stable (see Chart S.3.23), with the median standing below 100% for the last three years, favoured by benign loss developments in the last quarter of 2014.

While reported profitability was robust, challenges have emerged in **investment returns**, which continued to decrease in the last quarters. Such challenges appear to be linked to the prevailing environment of low interest rates (see Chart 3.25). This is especially true for some life insurance companies, due to a higher reliance on investment income as their guaranteed business is that exposed most to a prolonged period of low interest rates.

While the **capital** positions of the large euro area insurers have been relatively stable over the last few years (see Chart S.3.24 in the statistical annex), the current low-yield environment has put pressure on the capital bases of small to medium-sized life

insurers, which tend to hold less diversified portfolios, including the potential for large duration mismatches between assets and liabilities. Indeed, the recent EIOPA 2014 stress test found that while the top 30 European insurers have Solvency II ratios of above 100%, 14% of the core stress participants (representing 3% of total assets in the sample) have a solvency capital requirement ratio below this threshold.³¹ This demonstrates that the vulnerability of some insurers becomes visible in market-based valuations. A potential sharp unwinding of risk premia (credit spreads increasing) would have a substantial impact on insurance companies via decreasing asset values, given their high exposures to fixed income securities – in particular corporate bonds – on the asset side.

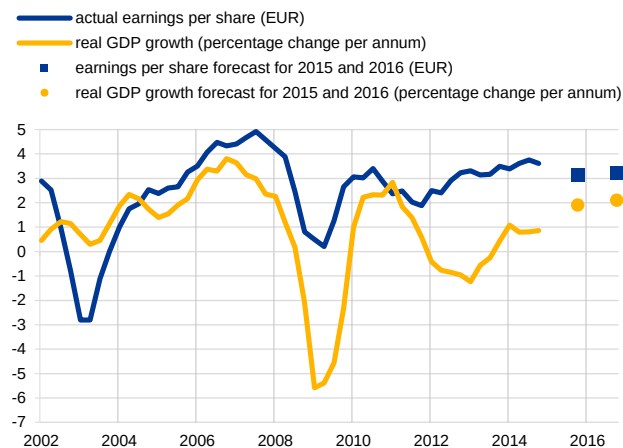
The EIOPA 2014 stress test also suggested that some euro area insurers – particularly life insurers that offer guarantees and have implied duration mismatches between assets and liabilities – are vulnerable under scenarios with coincident stress to both the asset and the liability side of balance sheets – for instance, adverse price developments in assets held by an insurance company (e.g. losses on sovereign holdings), combined with an increase of liabilities due to lower interest rates (which damages the ability of insurers to match their liabilities).

Chart 3.27

Despite the challenging environment, market-based indicators suggest a stable outlook for euro area insurers

Earnings per share of selected euro area insurers and real GDP growth

(Q1 2002 – 2016)



Sources: ECB, Thomson Reuters and ECB calculations.

Insurance sector outlook: market indicators and analyst views

The European insurance equity index has outperformed the overall stock market significantly since the third quarter of 2014 (see Chart S.3.30 and Chart 3.32). Despite the challenging operating environment that may constrain capital in the long term, waning euro area country fragmentation, high capital gains on bond holdings and the release of excess capital as a result of lower claims given falling inflation have boosted share prices. Market-based indicators suggest a relatively favourable outlook for next year (see Chart 3.27). Credit spreads on insurance bonds remain stable at low levels, which reflects the positive view of large insurers' performance (see Chart S.3.28).

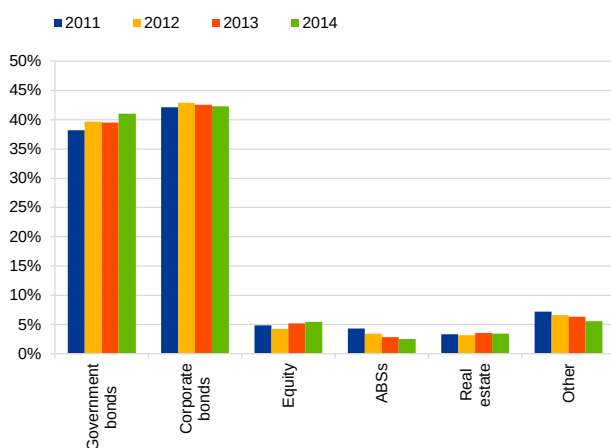
³¹ The solvency capital requirement (SCR) is a formula-based figure calibrated to ensure that all quantifiable risks are taken into account. The SCR is the capital required to ensure that the insurance company will be able to meet its obligations over the next 12 months, with a probability of at least 99.5% (see "EIOPA insurance stress test 2014", EIOPA, 28 November 2014).

Chart 3.28

Investment portfolios still dominated by fixed income securities...

Investment portfolio split of selected euro area insurers

(2011-2014; percentage of total investments; weighted averages)



Sources: JPMorgan Cazenove, individual institutions' financial reports and ECB calculations.

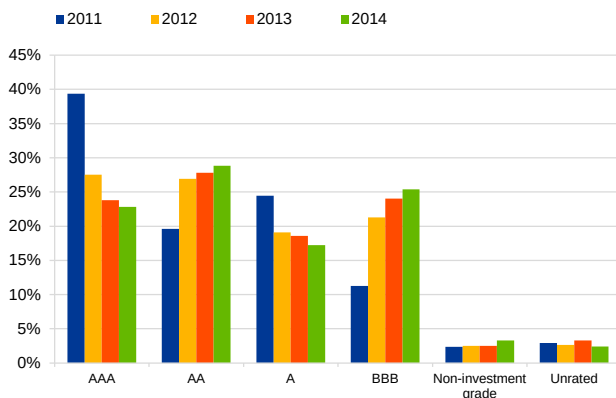
Note: Based on available data for 15 large euro area insurers and reinsurers.

Chart 3.29

... with lower rated bond exposures increasing

Bond investments of selected large euro area insurers split by rating category

(2011-2014; percentage of total investment portfolio; weighted averages)



Sources: JPMorgan Cazenove, individual institutions' financial reports and ECB calculations.

Note: Based on available data for 15 large euro area insurers and reinsurers.

Notwithstanding such strong equity performance in the past, analysts expect profitability challenges to remain significant, especially for life insurance companies in a low interest rate environment. Life insurers that have sold products with guaranteed returns are expected either to increase their premiums charged from customers or to reallocate their portfolios towards more risky assets – as it is becoming difficult to write profitable spread business that is attractive to policyholders. On the non-life insurance side, better combined ratio margins, and higher and more stable returns on equity, are expected.

Investment risk

Large euro area insurers have been gradually re-risking their investment portfolios in response to low yields on portfolios traditionally dominated by fixed income instruments. Indeed, such pressures are inherent in rolling over assets – implying a need to reinvest at lower yields, or to seek alternative, less traditional investments. In practice, this has involved two mechanisms: rotation within fixed income portfolios and an extension of duration risk. This re-risking has been done on an incremental basis as assets are rolled over and new money is reinvested with a greater weighting towards **higher-yielding bonds** (see Chart 3.29)³², rather than by liquidating balance sheet assets. Contrary to the signals of the investment uncertainty map (see Chart 3.31), exposures to sovereign bonds and covered bonds have increased over the past year, whereas exposures to structured credit have fallen, with slight movements in other asset classes as well (see Chart 3.28). At a sectoral level, the trend towards investment in illiquid assets (e.g. securitisations, corporate loans, real estate loans, **infrastructure investments**³³ and mortgage loans) is accelerating, although only slightly, in some cases facilitated by recent changes in the calibration of the future Solvency II regulatory regime.

³² Rating downgrades have probably also contributed to pushing down the ratings of holdings.

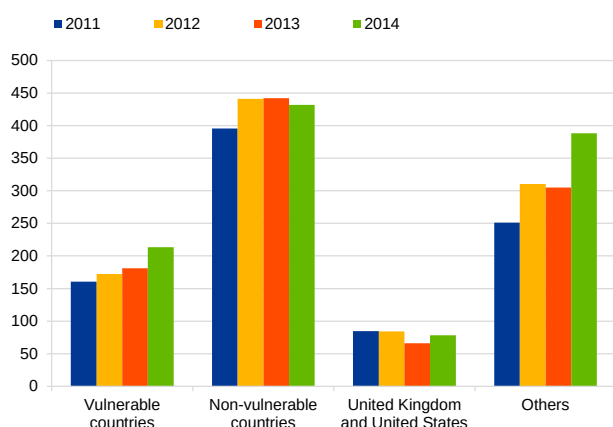
³³ With respect to long-term investment by insurers in the infrastructure sector, the following three investment vehicles seem to be the most popular: (i) direct project finance (bonds, loans or equity), (ii) infrastructure investment funds (listed and unlisted) and (iii) infrastructure loan securitisation vehicles.

Chart 3.30

Sovereign exposures remain high, with increases in debt issued by emerging market economies and vulnerable euro area countries

Geographical split of the government bond holdings of selected large euro area insurers

(2011-2014; EUR billions)



Sources: JPMorgan Cazenove, individual institutions' financial reports and ECB calculations.

Notes: Vulnerable countries are Spain, Italy, Portugal, Greece and Ireland. Non-vulnerable countries are Germany, France, Belgium, Netherlands and Luxembourg. Based on available data for 15 large euro area insurers and reinsurers.

Investments in **government bonds** – in some cases, with a high domestic sovereign focus – continue to be the most important element of most portfolios. Further decomposition of sovereign bond exposures in terms of geographical orientation (see Chart 3.30) shows that large euro area insurers have recently increased their total amounts outstanding of exposures to vulnerable euro area countries and other jurisdictions (with emerging economies' bond markets accounting for an increasing share), while decreasing their exposures to other euro area countries. However, these aggregate exposures conceal a high degree of heterogeneity at the country and company level. For instance, exposures to Greece and Portugal have fallen by 95% and 37% respectively since 2011, while the recent decrease in exposures to higher-rated euro area countries has been driven mainly by a reduction of German sovereign bond exposures.

Insurers may act **pro-cyclically**³⁴ with their asset allocation, given a prospect of commonality in behaviour due to common exposures and business models, the increased use of asset managers,

benchmarks and mechanical investment rules and regulation. Insurers reacting pro-cyclically may also contribute to the building-up of risk in periods of financial exuberance, in which risk (such as credit and liquidity risk) is under-priced, by taking on more risk. In addition, life insurers are major users of interest rate swaps. Apart from increased counterparty and liquidity risks, derivatives activity may contribute to pro-cyclicality in some cases. For example, when risk-free rates are falling, insurers may increase their demand for interest rate swaps (as receivers of fixed interest rates) to insulate themselves against further falls, which could push rates down further.

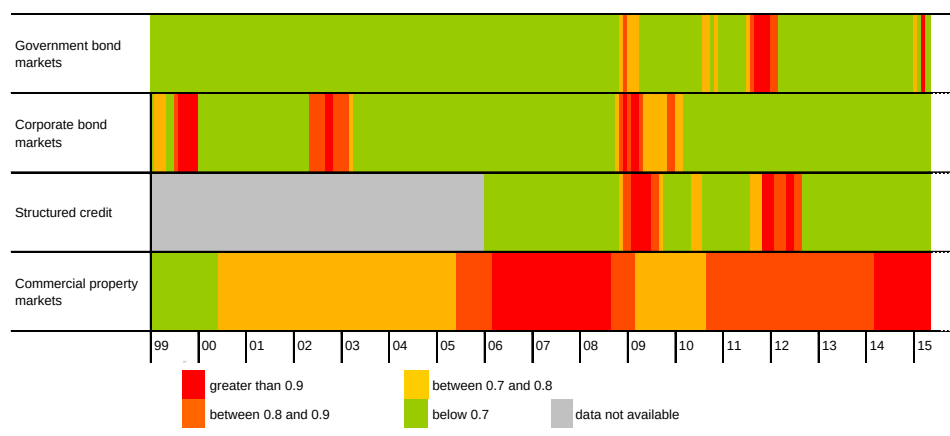
³⁴ See, for example, "Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A Discussion Paper by the Bank of England and the Procyclicality Working Group", Bank of England, July 2014.

Chart 3.31

Investment uncertainty map shows potential for corrections in several markets

Investment uncertainty map for the euro area

(Jan. 1999 – Apr. 2015)



Sources: ECB, Bloomberg, JPMorgan Chase & Co., Moody's, Jones Lang LaSalle and ECB calculations.

Notes: Each indicator is compared with its "worst" level since January 1999. "Government bond markets" represent the euro area ten-year government bond yield and the option-implied volatility of German ten-year government bond yields, "Corporate bond markets" A-rated corporate bond spreads and speculative-grade corporate default rates, "Stock markets" the level and the price/earnings ratio of the Dow Jones EURO STOXX 50 index, "Structured credit" the spreads of residential and commercial mortgage-backed securities, and "Commercial property markets" commercial property values and value-to-rent ratios.

Other activity

Reliance on carry trades to generate profits – whereby the insurer offers a guarantee to a customer and tries to invest that money in a bond (or any other asset class) to obtain higher returns so as to earn a spread – has been challenged by declining risk-free interest rate and credit spreads. If the duration of companies' assets and liabilities were completely matched, the primary impact from lower yields would be on the profitability of new business. Euro area insurers are still managing to write new business as they are continuing to reduce the guaranteed rates on such business, but margins will continue to decline as interest rates fall further.

Pressures in non-life insurance arise mainly from retail business, in particular motor and property insurance. Intense competition – also from non-insurance companies – is likely to continue to weigh on profitability. Aggressive pricing and uncontrolled growth are factors that can endanger the continuity of the provision of insurance coverage by driving competitors out of business and diminishing the natural substitutability across the different providers of insurance cover. In addition, aggressive pricing can result in under-reserving building up unnoticed over time.

In life insurance, new business presents options in terms of changes in product design or changes in the mix of business to counteract the effect of low interest rates. Enhanced asset management operations allows fee-based revenue streams to be tapped that help to diversify earnings away from underwriting performance and spread-based investment income, because they are also less capital-intensive than designing guaranteed products that place the expense of hedging on the insurer's balance sheet. Life insurance corporations have already started to focus on these options, with increased sales of unit-linked products without guarantees, while also

exploring new lines of business and improving analytics³⁵ to better cope with the low-yield environment.

Involvement in **non-traditional and non-insurance activities**³⁶ remains limited at the euro area aggregate level. These activities imply material liquidity transformation, maturity mismatch, leverage, complex risks and financial system interconnectedness, all of which make insurers particularly pro-cyclical and vulnerable to financial risks, especially in the event of a financial crisis where insurers might face correlated and larger than expected losses, and be confronted with liquidity pressures that potentially amplify external shocks. Although credit intermediation activities by euro area insurers are not extensive, they are not insignificant in some countries, nor are they insignificant when taken together. The extension of credit to households and corporates is only significant in the Netherlands, Belgium and Germany. In these countries, loans account for more than 5% of insurers' total financial assets. However, these loans (mainly mortgages) are not significant when compared with the total credit extended in these countries. Sales of credit protection are also reported to have increased slightly in recent times.

The **reinsurance** industry has benefited from a decline in overall losses in 2014, and from the fact that the insured losses caused by global natural disasters were the lowest recorded since 2009. This prolonged period of relatively benign catastrophe activity – combined with continued inflows of new capital – has had a further dampening effect on reinsurance rates, especially those in catastrophe business. Reinsurance pricing – which is, in turn, an important driver of primary commercial insurance pricing – had declined by 10-15% at the beginning of the 2015 renewal period. Weakening rates are affecting all lines of reinsurance business and all regions. Whilst demand for reinsurance cover has increased in the wake of rate cuts in 2014, this has partly been offset by the fact that large insurance groups are centralising their purchasing of reinsurance, leading to an increase in retentions (i.e. purchases of less reinsurance).

³⁵ As is the case in many other sectors, "big data" – extremely large data sets that may be analysed computationally to reveal patterns, trends and associations – is becoming increasingly important to insurers' profitability and competitiveness, particularly for customer service, pricing and fraud detection. For example, big data is starting to feature in health insurance, with products such as wristbands that monitor policyholders' physical activity providing data for pricing that more accurately reflects each customer's individual risk profile. In non-life insurance telematics, data are already widely used in motor insurance.

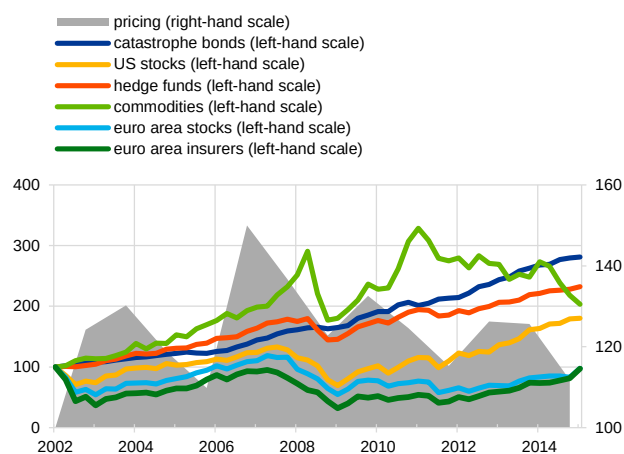
³⁶ These activities include, among others, financial guarantee insurance and direct lending.

Chart 3.32

Reinsurance prices continue to fall, driven by (among other factors) inflows of alternative capital attracted by outperforming catastrophe bond returns

Cumulative return profiles, broken down by market asset class and reinsurance pricing

(Q1 2002 – Q1 2015; index: Q1 2002 =100)



Sources: Bloomberg, Guy Carpenter and ECB calculations.

Notes: The series for pricing ends Q4 2014. S&P 500 and EURO STOXX are used as benchmark indices for US and euro area stocks respectively. The Guy Carpenter World Property Catastrophe RoL Index tracks changes in property catastrophe reinsurance premium rates on a worldwide basis.

Catastrophe bond issuance reached a record high of USD 8 billion in 2014, reflecting increasing investors' appetite in this sector. The ongoing search for yield in the current environment continues to make it attractive for **alternative capital**³⁷ to flow into the reinsurance industry, in particular through insurance-linked products (see Chart 3.32), which in turn drives down the price of the insured risks (even though the risks themselves may not have changed materially). The increased issuance of these types of products creates tighter links between reinsurers and financial markets, potentially resulting in some degree of opaqueness where it is not entirely clear who holds the risk. This also makes the reinsurance market vulnerable to pro-cyclical behaviour on the part of investors. In addition, insurance-linked securities may lead to the building-up of tail risk for investors who are not aware of, let alone appropriately able to manage, this risk. For instance, longevity risk transfer exposes investors to relatively unknown risks. In the euro area, the absolute volumes, although increasing sharply, are currently still modest.

Although cyber insurance products have been around for over a decade, general awareness has only recently increased after a number of high-profile breaches. **Cyber insurance** has been conceived to mitigate losses of business income caused by damage stemming from a cyber attack. New data protection legislation is in the pipeline across Europe,³⁸ with the potential to increase demand for cyber insurance in the near future. Lack of expertise and an inadequate understanding of cyber risks by both underwriters and policyholders remain a major obstacle to even greater growth in this field. Cyber attacks differ from traditional insurable risks in that their scale and, consequently, the associated financial loss could be significantly higher and more widespread than in the case of any other risk that is insured today. Aggregation risk should be particularly closely monitored as the cross-border nature of cyber attacks undermines geographical diversification through reinsurance.

The potential use of **captive reinsurance**³⁹ for capital arbitrage is regarded as a prominent risk to financial stability that emerged in the United States last year.⁴⁰ In

³⁷ Alternative capital accounted for USD 60 billion of the global property catastrophe limit at the end of 2014, accounting for 18% of the global catastrophe limit, up from 15% in 2013, according to Guy Carpenter.

³⁸ In 2013, the European Commission proposed an EU Network Information Security Directive to put in place a cyber security strategy for "critical infrastructure operators" which provides a framework for the implementation of a common level of data and network security across the EU. The regulations include breach and incident notification obligations.

³⁹ Captive reinsurance companies are affiliates of insurers that are not subject to the same prudential reserve and capital requirements as a primary insurer. Captive reinsurance companies are created for the purpose of assuming insurance risk that is transferred from a regulated insurance affiliate.

⁴⁰ 2014 Annual Report, Office of Financial Research, US Department of the Treasury, December 2014.

the euro area, group supervision and strict rules on the equivalence of supervisory regimes outside the euro area should prevent regulatory arbitrage. However, euro area insurance groups with subsidiaries in the United States could benefit from shifting risks to captive reinsurance subsidiaries of that US subsidiary, if the solvency regime of the United States is considered equivalent for the next decade. Evidence of such activities exists and warrants close monitoring. Finally, capital arbitrage may also occur in the application of macroprudential tools in the banking sector. Instances could emerge where activities and risks targeted by the use of such tools in the banking sector could migrate to insurers either directly or indirectly via funding or credit instruments. Incentives to move risks between entities, especially within financial conglomerates, cannot be ruled out due to differences between Solvency II and the CRD IV.

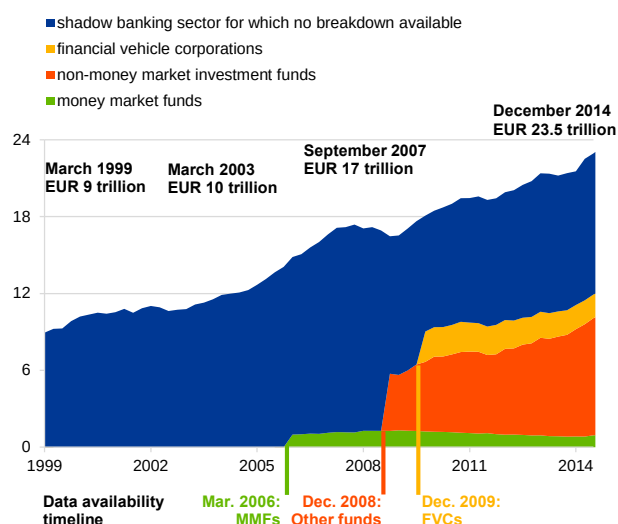
3.1.3 Euro area non-bank entities

Chart 3.33

Expansion of non-bank entities in the euro area driven mainly by growth in the investment fund sector

Broad euro area shadow banking assets

(Mar. 1999 – Dec. 2014; EUR trillions)



Sources: ECB and ECB calculations.

Note: A breakdown of statistical data for MMFs, other funds, and financial vehicle corporations (FVCs) is available only from the indicated dates onwards.

The role of non-bank entities in credit intermediation, and their links to the wider financial system, has strengthened amid historically low nominal rates and an ongoing search for yield. Using the broad definition of shadow banking by the Financial Stability Board (FSB), assets of non-bank financial entities in the euro area have more than doubled over the past decade, to reach €23.5 trillion by December 2014.⁴¹ Since 2009, the shadow banking entities have increased their share in the total assets of the financial sector from 33% to 37%, while – in parallel – credit institutions have seen their share in intermediation shrink from 55% to 49% of the approximately €60 trillion of total financial system assets in the euro area. This strong growth, and the increasing role of the non-bank entities in the euro area's financial system, warrants closer scrutiny of structural and cyclical developments in these entities, including risks to financial stability.⁴²

Growth of the non-bank financial sector has gathered pace again in recent years, following the global financial crisis and a shift to market-based funding. The expansion of the non-money market investment fund sector has been the main source of growth of the shadow banking sector. Notably, at

⁴¹ The broad measure of euro area shadow banking entities refers to money market funds (MMFs) and other financial intermediaries (OFIs), which include all non-monetary financial institutions apart from insurance corporations and pension funds. This measure is akin to the broad measure proposed by the FSB in its mapping exercise. The FSB defines shadow banking as "credit intermediation that involves entities and activities outside the regular banking system" (see "Shadow Banking: Scoping the Issues", FSB, 12 April 2011, p. 3.).

⁴² The approach to monitoring shadow banking entities in the euro area was previously introduced in the Special Feature entitled "Structural features of the wider euro area financial system", *Banking Structures Report*, ECB, October 2014, pp. 28-45.

the same time, money market funds and financial vehicle corporations have declined in volume terms. The broad shadow banking aggregate continued to grow strongly over the past six months, at an annualised rate of 14% (see Chart 3.33).

While it is difficult to discern a direct replacement of bank credit by non-bank financial intermediation in the euro area, the growing role of non-bank entities in the financial sector there implies that the systemic relevance of these entities is increasing and that the potential for difficulties, should they emerge, within non-bank financial entities to reverberate to the wider financial system is growing. As the non-bank financial entities have strong direct and indirect links with the traditional banking sector, there are concerns that shadow banking entities could be part of future systemic events. Possible channels of risk contagion and amplification include correlated asset exposures, as well as mutual contractual obligations in derivatives markets, and securities lending and financing transactions. Where the direct links are concerned, euro area non-bank entities are important providers of bank funding and hold roughly 10% of bank debt securities. Conversely, euro area banks' direct exposures to non-bank entities amount to 8% of the aggregate balance sheet of MFIs. In addition, banks can provide liquidity backstops, indemnification or credit lines to non-banks in times of stress.

Two factors are particularly relevant from a financial stability perspective. First, there is a growing concern about the potentially destabilising role of non-bank entities in sharp price adjustments in asset markets. While key vulnerabilities result from liquidity transformation and the pro-cyclical provision of liquidity to financial markets, solvency concerns are somewhat muted due to a high share of equity in some relevant parts of the sector. Second, while important data collection projects are underway, the ability of the authorities to monitor specific risks remains limited. For

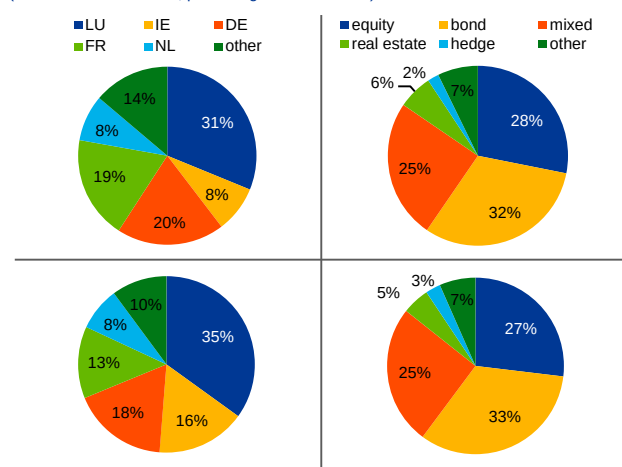
instance, the use of leverage embedded in derivatives positions, as well as in securities lending and financing transactions, is difficult to monitor, but market intelligence suggests that these activities have become widespread in the non-bank financial sector.

Chart 3.34

Significant growth and further concentration of assets under management in key locations

Fund assets by location and type

(Dec. 2009 – Dec. 2014; percentage of total assets)



Sources: ECB and ECB calculations.

Notes: The columns refer to fund assets by location and type. The first and second rows represent the situation in 2009 and in 2014, respectively.

The investment fund sector

The rapid expansion of non-money market investment funds (non-MMFs) has been the main driver of growth in the non-bank financial sector and accounts for a significant proportion of its assets. The sector has expanded by almost 30% since 2010, excluding valuation effects. **Assets managed** by investment funds other than MMFs have increased by €4.0 trillion (74%) over the past five years, and by €660 billion (7.5%) in the past six months, to reach €9.4 trillion in the fourth quarter of 2014. The bulk of these funds are domiciled in Luxembourg, Germany, Ireland, France and the Netherlands, where the concentration of assets

under management in key locations has increased further since 2009 (see Chart 3.34).

From a financial stability perspective, concerns relate to investment funds' increasing role in credit intermediation and capital markets, and the implications for the wider financial system and the real economy. The fire-sale properties of demandable equity, the explicit or implicit leverage and the large footprint of some individual funds and asset management companies⁴³ provide **channels for contagion** and risk amplification to the wider financial system. Industry-wide risks could be triggered, for instance, by a crisis of confidence in one or more large asset management companies and the funds they manage. Since almost all large asset management companies in the euro area are owned by banks or bank holding companies, reputational problems in the asset management arm could spill over to the parent company, or vice versa.

The greater the leverage, liquidity mismatch and size of certain intermediaries, the more likely investment funds are to amplify shocks and impose externalities on other parts of the financial system.⁴⁴ Bond funds, real estate funds and hedge funds, in particular, have a potentially high impact. The bond fund sector is large in size (€3 trillion), holds a significant proportion of illiquid assets and plays an important role as provider of marginal liquidity in secondary bond markets. Smaller in size, real estate funds likewise engage in liquidity transformation with a focus on investment in assets that are highly illiquid. The hedge fund sector domiciled in the euro area appears to

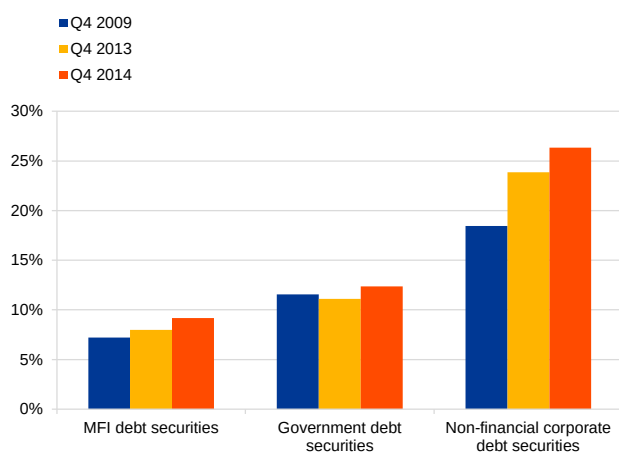
be relatively small. However, hedge funds within and outside the euro area are important providers of market liquidity, especially in the less liquid asset markets. Hedge funds also rely more heavily on bank funding than other types of funds.

The **market impact** of the sector is high, in particular for euro area secondary bond markets, as investment funds hold a relevant and growing proportion of the debt securities of euro area banks, governments and non-financial corporates (see Chart 3.35). In the less liquid non-financial corporate markets, more than 25% of debt securities outstanding are now held by investment funds, a share that has increased significantly not only over the last few years, but also in the recent past. In the much larger markets for government and bank debt securities, investment funds still hold relevant shares of 12% and 9% respectively. Any large-scale portfolio rebalancing among investment funds could therefore result in significant

Chart 3.35

Rising share of investment funds in euro area bond markets

Share of outstanding euro area debt securities issues held by euro area (non-MMF) investment funds



Sources: ECB and ECB calculations.

⁴³ See Box 2 entitled "Structural and systemic risk features of euro area investment funds", *Financial Stability Review*, ECB, November 2014, pp. 43-46.

⁴⁴ Chart 12 in the Overview illustrates three key metrics that determine contributions to systemic risk, i.e. size, leverage and liquidity mismatch, for each investment fund sub-sector.

swings in asset prices and market liquidity, possibly increasing funding costs for key euro area sectors.

Market intelligence suggests that crowded trades and search for high beta have made certain segments of the bond markets susceptible to bouts of low liquidity and the repricing of risk. Herding among fund managers and the unwinding of crowded trades is a relevant vulnerability in this context. Other factors include performance benchmarking and a rising share of passive investments that may aggravate herding among asset managers, especially in times of high uncertainty.

Concerns have been rising over the past few years that, given the growing size of the investment fund sector,⁴⁵ large-scale **fund outflows** could adversely affect market liquidity, leading to structurally declining liquidity in some market segments and correlated exposures of funds (see Section 2.2). In the past, substantial outflows could be observed, in particular after major market events and sustained periods of stress. Following debt sustainability concerns in the euro area in August 2011, for instance, funds experienced comparably large outflows that amounted to more than 15% of the total assets for European high-yield institutional funds.⁴⁶

Any future large-scale fund outflows could be aggravated by strategic complementarities among funds' investors that result from first-mover advantages. Run-like risks arise from the issuance of callable equity used to fund relatively illiquid portfolios. Investment funds that invest in thinly traded assets face higher asset liquidation costs, but may also find it much harder to price their shares efficiently. While redemption fees or "swing-pricing" can mitigate risks associated with first-mover advantages, they cannot rule out that investors may wish to redeem their shares, also on a large scale.

Even though active portfolio management may enhance market liquidity under normal market conditions, investment funds could consume, rather than provide, liquidity under stressed conditions. Since large-scale outflows cannot be ruled out in the wake of economic and policy surprises, asset managers may be forced to replenish their liquidity buffers, to adjust portfolios within a short time span or to suspend the redemption of shares, thereby affecting **market liquidity** and exposing other market participants to spillover effects. Some asset managers may be further constrained in their ability to bridge acute periods of stress by internal investment policies and regulatory caps that prevent them from holding on to assets that are falling in value. Any outflows will probably add to existing sell-off pressures, even if they may not initially be caused by fund outflows.

A further concern relates to the growing **use of leverage** in the investment fund sector. Since average leverage ratios of investment funds are more than ten times smaller than those of banks, solvency risks seem to be limited – even when considering the more highly leveraged real estate and hedge funds. Comparing

⁴⁵ About 60% of investment funds in the euro area are governed by regulations on undertakings for collective investment in transferable securities (UCITS) and very probably offer shares redeemable on a daily basis, with this proportion varying across countries and sub-sectors. Likewise, non-UCITS funds can have liquidity mismatches, although redemption gates often mitigate the run risk of individual funds.

⁴⁶ According to EPFR aggregate monthly net flow data for funds domiciled in western Europe.

balance sheet leverage in the investment fund sector to banks clearly shows how differently these two sectors intermediate credit and perform liquidity and maturity transformation. Banks are funded mainly by callable debt, i.e. deposits and notes, in addition to longer-dated liabilities, while investment funds issue predominantly callable equity. Therefore, balance sheet leverage ratios are relatively low for investment funds.

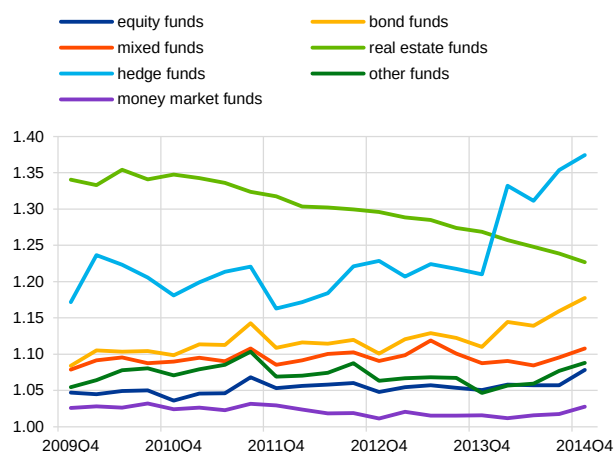
However, leverage differs greatly among the various entities and there may be pockets of high leverage in parts of the investment fund sector where it is potentially destabilising, but masked by the aggregate figures. For instance, some hedge fund strategies are known to involve high leverage, such as relative-value and global macro strategies.⁴⁷ Leverage may be high and growing, in particular for funds not governed by the UCITS regulations which limit the use of debt funding.

Chart 3.36

Headline leverage in parts of the investment fund sector on an upward trend since 2013

Total assets to shares/units issued

(Q4 2009 – Q4 2014; ratio)



Sources: ECB and ECB calculations.

Data from the ECB's investment fund statistics show that balance sheet leverage has been on an upward trend since 2013, in particular in the case of hedge funds and bond funds (see Chart 3.36). This is also due to a relative increase in the balance sheet item which captures remaining assets and liabilities, including accrued interest and derivatives positions. Further data suggest that the use of derivatives is especially high and growing not only among hedge funds, but also among bond funds in comparison with other types of investment funds.

Swaps, futures and other derivatives allow investment funds to gain exposures to asset classes even without having them fully funded. In addition to balance sheet leverage, contingent commitments from such transactions create "**synthetic leverage**". Although the UCITS Directive regulates leverage, it is possible under the current regulatory framework to gain exposures synthetically. Depending on the metric used,

such exposures can imply higher leverage than suggested by headline ratios (see Box 7). While solvency concerns play a lesser role than in banks, synthetic leverage can add to **liquidity spirals**, especially in times of distress, due to the high volatility of synthetically created exposures and the pro-cyclical nature of margining requirements associated with them.

Data availability still limits the ability of authorities to monitor synthetic leverage from a financial stability perspective, i.e. taking into account both on-balance-sheet and off-balance-sheet exposures. The European Securities and Markets Authority (ESMA), which is tasked with harmonising reporting practices, can request access to supervisory data from national authorities. However, supervision of investment funds remains vested de facto in national authorities, and statistical data on exposures and

⁴⁷ See "Hedge Fund Survey", Financial Conduct Authority, March 2014, p. 22.

synthetic leverage in the investment fund industry are not collected in a systemic manner at the European level.

Box 7

Synthetic leverage in the investment fund sector

Excessive leverage is a key contributor to systemic stress. At the same time, measuring leverage has become more complex as financial innovation has given rise to contingent commitments not being captured ex ante by traditional leverage ratios. Such “synthetic leverage” can stem from derivative instruments or securities financing transactions that create exposures contingent on the future value of an underlying asset, which becomes evident, for instance, when a derivative position’s value moves strongly, potentially creating a profit or loss.

For the banking sector, concern relates to whether leverage embedded in derivative positions is adequately captured in capital ratios and whether regulatory arbitrage is possible by creating leverage synthetically. However, synthetic leverage is also relevant for the investment fund sector, which is subject to a different set of prudential rules. While solvency concerns in this sector are less prevalent due to a broad equity investor base, synthetic leverage can still play a role in fuelling liquidity spirals given pro-cyclical margining⁴⁸ and collateralisation practices. Moreover, as most sizeable asset management companies in Europe are owned by banks,⁴⁹ i.e. providing services or products to investment funds, synthetic leverage may play a role in amplifying shocks and transmitting them to the wider financial system.

A common way to capture synthetic leverage is by calculating cash-equivalent portfolios.⁵⁰ Estimates of the market value of that equivalent portfolio are set in relation to the equity position to gauge synthetic leverage incurred. An important factor for calculating cash-equivalent portfolios is the calculation of exposures taking into account relevant netting sets. The definition of these is not trivial as many contracts differ in maturity, coupons or other contractual details. Some assets entering the netting sets may not be perfectly correlated; others potentially offset each other but have differing counterparty exposures.

The key regulations that govern leverage in the investment fund sector in the European Union are (i) the Undertakings for Collective Investment in Transferable Securities (UCITS) Directive and (ii) the Alternative Investment Fund Managers Directive (AIFMD). Under the UCITS Directive, funds have to comply with strict limits on leverage. Depending on the type of investment strategy, UCITS have to use a different method and comply with the limits applicable to that method.⁵¹ For basic investment strategies, UCITS should use the “commitment approach” under which derivatives exposures are converted into equivalent positions. The resulting “global exposure” comprises

⁴⁸ The risks arising from pro-cyclicality in margining and haircut practices are described in detail in “The role of margin requirements and haircuts in procyclicality”, *CGFS Papers*, No 36, Committee on the Global Financial System, March 2010.

⁴⁹ See Box 2 entitled “Structural and systemic risk features of euro area investment funds” in *Financial Stability Review*, ECB, November 2014.

⁵⁰ See Breuer, P., “Measuring off-balance-sheet leverage”, *Journal of Banking and Finance*, Vol. 26 (2-3), 2002, pp. 223-242.

⁵¹ The methods for calculating leverage are set out in the implementing Directive 2010/43/EU and further detailed in “CESR’s Guidelines on Risk Measurement and Calculation of Global Exposure and Counterparty Risk for UCITS”, 28 July 2010.

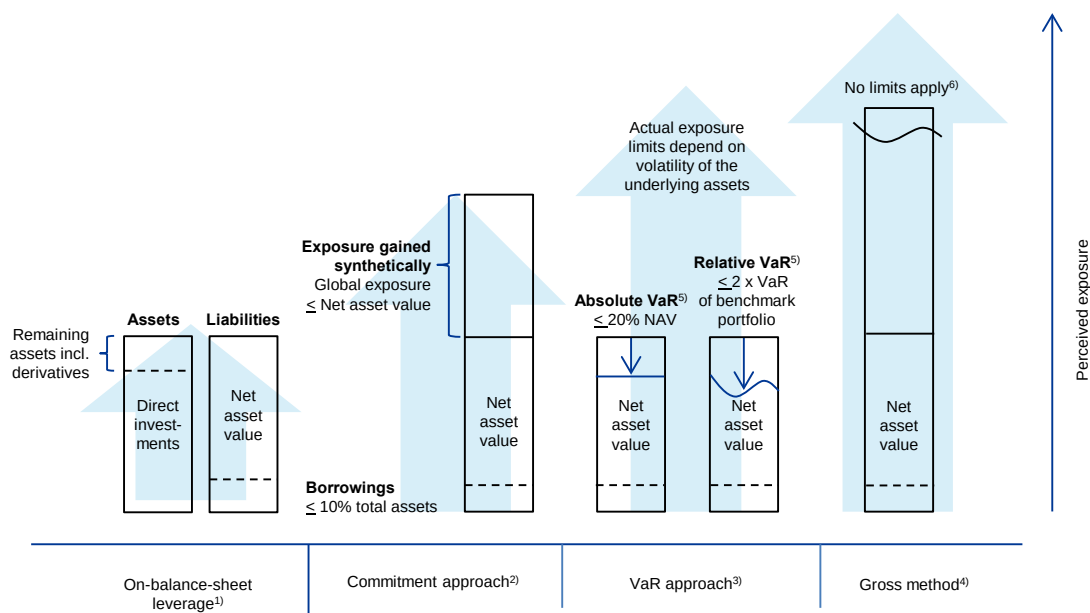
equivalent positions after netting and reinvested cash collateral. Global exposure must not exceed the fund's total net asset value (NAV).⁵² For more complex investment strategies, UCITS should use the value at risk (VaR) and again, depending on the type of investment strategy, different types of VaR and limits should be used. UCITS are further limited in the amount they can borrow, i.e. with a limit of up to 10% of their assets on a temporary basis.⁵³

Chart

Leverage can be higher than what headline ratios suggest

Reporting options, exposure limits and synthetic leverage in investment funds

(arrows reflect perceived risk exposures for a given portfolio under different reporting options)



Notes:

- 1) Under the UCITS Directive, a fund may not borrow more than 10% of its assets on a temporary basis.
- 2) Under the UCITS Directive, global exposure after netting may not be higher than the fund's net asset value (NAV).
- 3) Maximum potential loss for a confidence interval, assuming a certain probability distribution for historical observations.
- 4) Sum of gross exposures, i.e. portfolio equivalents for derivatives, excluding cash; metric to be reported under the UCITS Directive and the AIFMD.
- 5) Maximum potential loss over a 20-day period at a 99% confidence interval; restrictions apply to UCITS.
- 6) Other limits may be binding, including counterparty exposure for UCITS.

Whereas the UCITS Directive limits the use of leverage, the AIFMD does not set any hard limits. Under the AIFMD, asset managers have to report the leverage of the funds they manage according to the commitment approach and the "gross method", which use slightly different definitions of leverage than the methods applied under the UCITS Directive.⁵⁴ The AIFMD also foresees the possibility for national authorities to impose limits on the leverage employed by an AIFM under its jurisdiction.⁵⁵

An illustration of how funds' perceived risk exposures can vary for a given portfolio is depicted in the chart above, depending on which of the reporting methods is used. The first panel relates to the

⁵² This limit is set out in Article 51(3) of the UCITS Directive, 2009/65/EC.

⁵³ This limit is set out in Article 83 of the UCITS Directive, 2009/65/EC.

⁵⁴ The methods for calculating leverage under the AIFMD are set out in Directive 2011/61/EU and further detailed in the supplementing Regulation (EU) No 231/2013.

⁵⁵ ESMA can issue advice to national authorities on measures that it believes should be taken, such as the imposition of leverage limits.

UCITS Directive, which limits a fund's balance sheet leverage by restricting the amount of debt it can hold. The second panel considers cash-equivalent portfolios under the commitment approach. The commitment approach allows for the netting and hedging of equivalent derivative positions with opposite directions, making it a less conservative measure of leverage. The VaR approach⁵⁶ in the third panel captures a different dimension of synthetic leverage, notably the volatility in portfolio values it creates. Limits may or may not be stricter depending on the volatility of the underlying assets. The last panel shows the gross method, for which netting and hedging are not allowed, making it a more conservative calculation of leverage.

While these qualitative indications suggest that the amount of leverage could be a larger concern than balance sheet leverage and cash-equivalent reporting suggest, remaining data gaps prevent a definitive quantification of prospective financial stability risks. Although reporting obligations provide information on effective leverage, data on leverage in the investment fund sector are not yet readily available in the official statistics and are not collected with a view to monitoring systemic risks.⁵⁷ This suggests scope for a more systematic collection of statistical data on exposures and synthetic leverage in the investment fund sector, not least given the rapidly growing importance of this sector in the euro area.

Money market funds

The assets of the euro area money market fund (MMF) sector have shrunk from a peak of nearly €1.3 trillion in early 2009 to €835 billion in mid-2014. More recently, the sector has been growing again, namely by more than €100 billion in the period from June 2014 to December 2014. Growth in the second half of 2014 was driven predominantly by MMFs domiciled in Ireland and, to a lesser extent, by funds in Luxembourg, whereas funds in France shrank slightly in volume terms.

The consolidation of the MMF sector has continued as the number of these funds has more than halved since the global financial crisis, from around 1,600 before 2007 to slightly above 700 in December 2014, while the average fund size has increased by more than 70% over this period. Euro area MMFs remain highly interdependent with the euro area banking sector as around 73% of euro area money market fund exposures are to MFIs. The geographical concentration of the euro area MMF sector is high, with France, Ireland and Luxembourg accounting for up to 96% of the total money market fund sector.

⁵⁶ Depending on the type of investment strategy, different types of VaR and limits should be used. Under one option, funds reporting absolute VaR need to comply with a maximum VaR limit of 20% of their NAV, calculated over a one-month holding period at a 99% confidence interval. UCITS funds may further opt to report relative VaR, where the maximum VaR needs to be less than twice the VaR of the reference portfolio.

⁵⁷ Information collected by competent authorities at the national level can be shared with other EU authorities, such as ESMA or the ESRB. Moreover, EMIR establishes a comprehensive reporting regime for derivative transactions and positions, from which, in principle, the funds' derivatives exposures can be derived and used for monitoring purposes.

The maturity mismatch of euro area MMFs is limited by definition as both assets and liabilities are largely short-term in nature.⁵⁸ Moreover, money market funds have only limited leverage as they are largely funded through shares/units issued, rather than through debt. From a financial stability perspective, concerns relate mainly to liquidity mismatch and the role of money market funds in funding the regular banking system.

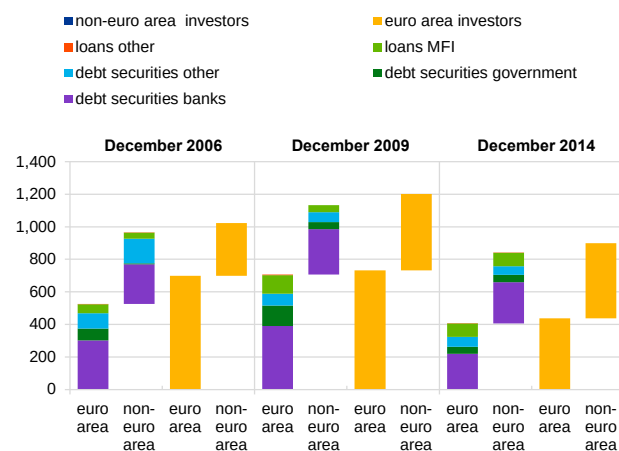
Money market funds may experience difficulties in meeting redemption claims and would add to sell-off pressures in short-term debt markets if there were large-scale outflows in a stress scenario. A lack of liquid assets could prove problematic, as – under the most conservative measure, which would include deposits at MFIs, government debt securities and equity as liquid assets – only around 20% of the balance sheet can be deemed liquid. Under a very broad definition of liquid assets, which also includes all (short-term) debt securities, this would increase to almost 90%, which is still less than the sum total of short-term liabilities. First-mover advantages can become a concern, depending on which asset valuation methods are used and how regularly the net asset value (NAV) is checked and adjusted.

Chart 3.37

Large and rising share of non-euro area investors in euro area MMFs

Composition of assets of, and investors in, euro area money market funds

(EUR billions)



Sources: ECB and ECB calculations.

There is a high degree of interdependence with the regular euro area banking system as more than 40% of money market funds' assets take the form of loans to euro area MFIs or holdings of euro area MFI debt securities. Bank debt securities remain by far the most important asset class held, accounting for three-quarters of the MMF balance sheet. At the end of 2014, euro area money market funds held €220 billion of euro area bank debt and €250 billion of non-euro area bank debt (see Chart 3.37). Moreover, US money market funds have been a key source of US dollar funding for euro area banks, which could prove problematic in the case of sudden outflows from these funds.

The investor base of MMFs differs significantly across countries. While French money market funds are almost exclusively euro area investors, the aggregate euro area money market fund balance sheet data suggest a sizeable reliance on non-euro area investors. Investors in Irish funds and, to a lesser extent, those in

Luxembourgish funds are largely non-euro area residents. The regional differences in the money market fund investor bases are mirrored by regional differences in MMF assets. The Irish money market funds – and, to a lesser extent, also Luxembourgish money market funds – invest mainly in non-euro area bank debt or in loans to non-euro area MFIs, with Irish funds having strong links to UK banks. French money market funds are invested almost exclusively in the euro area.

⁵⁸ The maturity restrictions of money market funds covered in the statistics on which this analysis is based are set out in Article 2(d) of Regulation (EU) No 1071/2013 of the European Central Bank of 24 September 2013 concerning the balance sheet of the monetary financial institutions sector (recast) (ECB/2013/33).

Regional differences in types of investment fund are also important from a regulatory perspective. The proposal that constant net asset value (CNAV) money market funds should hold capital equivalent to 3% of their total assets raised concerns about a further shrinkage of the MMF industry and its impact on euro area banks. While on aggregate, somewhat more than 40% of the industry's assets under management are invested by CNAV money market funds, European CNAV funds are all based in Ireland (two-thirds) and Luxembourg (one-third). As a rule, such funds also have a larger non-euro area investor base than variable net asset value (VNAV) funds. While such CNAV funds may be more vulnerable to runs,⁵⁹ it is at the same time plausible that a withdrawal of non-euro area investors would impact mainly funds that are largely invested in non-euro area assets (non-euro area bank debt and loans to non-euro area MFIs).

In the euro area, MMFs hold quite a sizeable proportion of the short-term debt securities issued by both euro area banks (33%) and NFCs (52%), although the absolute amounts of NFC debt held by MMFs are much smaller than those of financials. The relative shares of holdings fluctuate significantly and have recently shifted from credit institutions to securities issued by non-bank corporates, also due to seasonal effects (see Chart 3.38). MMFs are important providers of liquidity in these markets, and their rebalancing of portfolios or withdrawal of funds may contribute to liquidity risk.

Financial vehicle corporations

Assets held by financial vehicle corporations (FVCs) have shrunk by 30% since the end of 2009, when reporting of the series started.⁶⁰ The decline in FVC assets can be explained by a weakening of loan origination and securitisation activity by euro area credit institutions over the past few years (see Chart 3.39), which in turn was largely driven by a reduced securitisation of loans to households.

⁵⁹ See, for example, the Recommendation of the European Systemic Risk Board (ESRB) on market funds of December 2012 and the proposed recommendations of the US Financial Stability Oversight Council (FSOC) regarding money market mutual fund reform of November 2012.

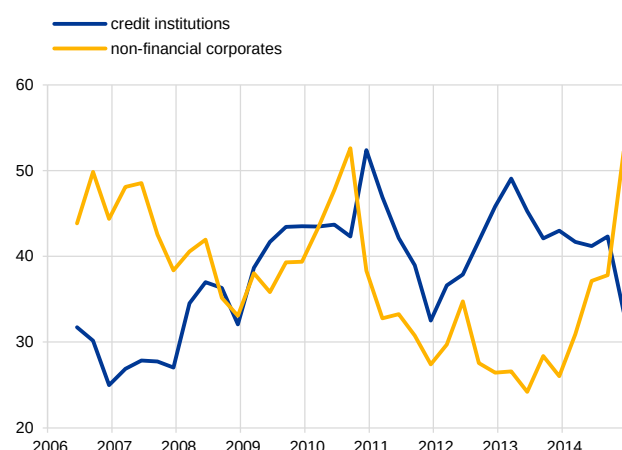
⁶⁰ See "The case for a better functioning securitisation market in the European Union", *Joint Discussion Paper*, Bank of England/ECB, May 2014 (available at: https://www.ecb.europa.eu/pub/pdf/other/ecb-boe_case_better_functioning_securitisation_market_en.pdf).

Chart 3.38

MMFs are important investors in euro area corporate short-term debt

MMFs' holdings of short-term euro area debt securities relative to total short-term debt securities issued by monetary financial institutions and non-financial corporations

(Q2 2006 – Q4 2014; percentages)



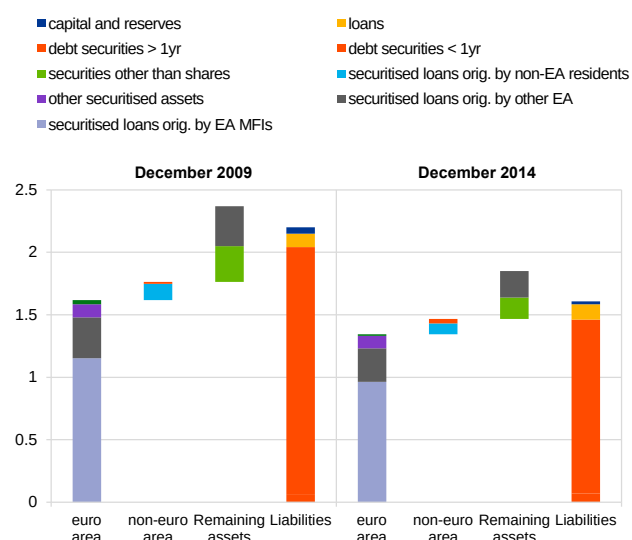
Sources: ECB and ECB calculations.

Chart 3.40

Liquidity mismatch limited as FVCs are largely funded by longer-term debt

Assets and liabilities of FVCs

(Dec. 2009 – Dec. 2014; EUR trillions)



Sources: ECB and ECB calculations.

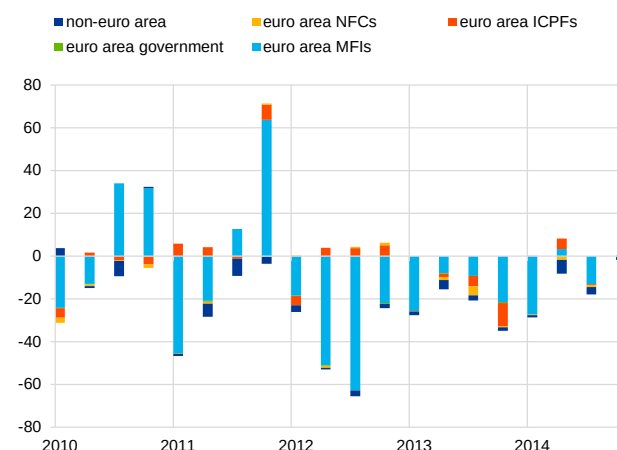
Note: Excludes other liabilities, i.e. (i) any differences between the nominal amount of principal outstanding of securitised loans and the transaction value paid by the FVC in purchasing such loans; (ii) financial derivatives liabilities subject to on-balance-sheet recording according to national rules; and (iii) accrued interest payable on loans and deposits and other amounts payable not related to the FVC's main business.

Chart 3.39

Securitisation activity in the euro area still subdued

Quarterly transaction volume by sector of the originated loan

(Q1 2010 – Q4 2014; EUR billions)



Sources: ECB and ECB calculations.

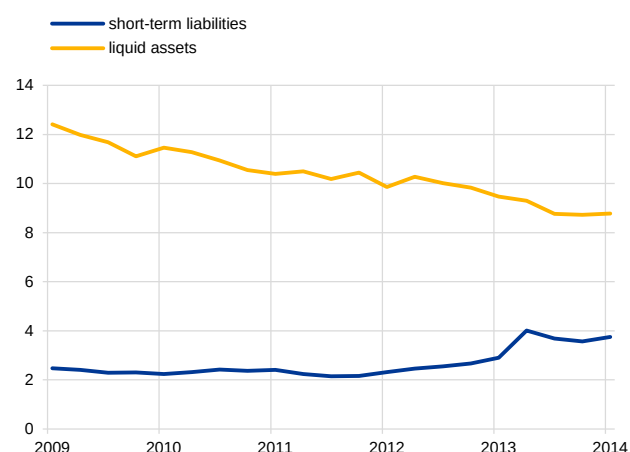
With €1.9 trillion of assets, this sector is still a sizeable and important component of the euro area's non-bank financial entities. FVCs remain an important channel for intermediating credit to euro area households. More than 10% of all MFI loans extended to euro area households are securitised through FVCs. For the Netherlands and Ireland, nearly one-third of all MFI loans to households are securitised through FVCs. Broken down by assets, most FVCs are located in countries that have experienced either a banking sector crisis or a house price collapse, or both.

FVCs are strongly interlinked with euro area banks; loans originated by euro area credit institutions account for 71% (nearly €1 trillion) of the FVC balance sheet. Securitised loans originated by euro area non-MFIs amounted to €279 billion by the end of 2014 (see Chart 3.40).

FVCs are generally set up to transfer credit risk from sponsors to investors. They engage in liquidity transformation, but do not necessarily carry a maturity mismatch. The FVCs take illiquid loans on their balance sheets and issue securities that are marketable or can be pledged by holders as collateral to obtain liquidity.

Chart 3.41**Liquidity transformation among FVCs increasing****FVCs' short-term liabilities and liquid assets**

(Q4 2009 – Q4 2014; percentage of total assets)

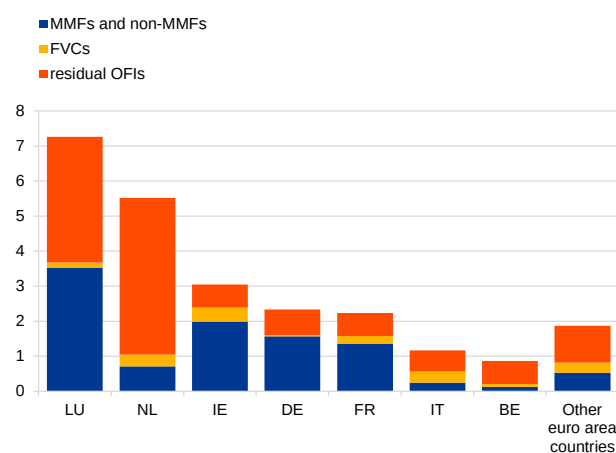


Sources: ECB and ECB calculations.

Note: Short-term liabilities include debt securities issued with an original maturity of less than one year; liquid assets include deposits at MFIs, debt securities with an original maturity of less than one year and equity (excluding securitisation fund units issued by other FVCs).

Chart 3.42**Large parts of the non-bank financial sector remain in the shadows****Assets held by non-bank financial entities**

(Dec. 2014; EUR trillions)



Sources: ECB and ECB calculations.

A large proportion (approximately 75%) of the total assets of FVCs are longer-term assets, and this share has remained stable throughout the crisis. However, most of the FVC balance sheets (€1.4 trillion) are financed through the issuance of longer-term debt securities (with an original maturity of more than one year), so that the maturity mismatch of assets and liabilities on FVC balance sheets appears to be limited on aggregate.

Owing to their heavy reliance on debt financing and large holdings of private sector loans, FVCs have much higher levels of leverage and illiquid assets than other non-bank entities. Capital and reserves represent less than 2% of the FVC balance sheet; 8% of funding comes from loans, and the remainder from the issuance of debt securities, most with an original maturity in excess of one year. Assets of these entities are 40 times greater than their capital and reserves, while the share of illiquid assets in their total assets reaches 89%. Available data suggest a notable rise in the issuance of short-term liabilities, while at the same time the relative share of liquid assets has shrunk (see Chart 3.41). A large proportion of the FVCs in the euro area tend to match the maturity of their assets and liabilities, but it cannot be excluded that a growing proportion of the sector engages in maturity transformation.

Remaining non-bank entities

While the ECB's recent data collection and classification exercise with respect to balance sheet data on investment funds and FVCs has provided detailed data and facilitated a better surveillance of the euro area non-bank financial sector, granular statistics are still not available for more than 50% of the sector's assets. Following the recent reclassification under the ESA 2010, some limited information on the size, asset composition and geographical distribution of this

“residual” has become available (see Chart 3.42). Two-thirds of these residual assets are held in the Netherlands and Luxembourg. In the Dutch case, they are likely to be held by special financial institutions (SFIs), since De Nederlandsche Bank estimates that such entities account for two-thirds of the broad Dutch shadow banking sector.⁶¹

⁶¹ See “Dutch shadow banking sector smaller than it seems at first sight”, *DN Bulletin*, De Nederlandsche Bank, 29 November 2012.

SFIs are set up by corporations (mainly non-financial corporations) for tax purposes, to attract external funding and facilitate intra-group transactions. Although classified as falling within the OFI sector, the bulk of these SFIs do not engage in shadow banking activities. In the case of Luxembourg and Belgium, the residual includes a significant proportion of holding companies and other entities not engaged in shadow banking activities that have very limited financial links to the banking sector.

Limited balance sheet statistics would add some weight to the assumption that most of the residual entities are SFIs or holding companies: half of their assets are loans, the bulk of which are extended to euro area NFCs, and the other half largely comprises equities, possibly held by dedicated holding companies for which no breakdown is available. SFIs issue debt securities and provide credit to firms, while holding companies do not undertake operations, but hold shares of other companies. The residual component also includes other entities, e.g. broker-dealers, if not consolidated in bank balance sheets. In addition to a more targeted monitoring of sectors with a known composition, the residual must be monitored as part of the broad shadow banking aggregate.

3.2 Assessing the resilience of euro area financial institutions through scenario analysis

This section provides a quantitative assessment of four macro-financial scenarios that map the main systemic risks identified in the analysis presented in the previous sections of this FSR (see Table 3.1). The baseline scenario used in the assessment is derived from the Winter Economic Forecast of the European Commission. The assessment of the impact of macro-financial shocks on euro area financial institutions is based on a macroprudential simulation exercise involving top-down stress-testing tools.⁶² The four risks are summarised below:

- (i) the risk of global financial market turbulence – reflected in a sharp increase of risk premia, amplified by low market liquidity, leading to falling stock and corporate bond prices, and to lower euro area external demand;
- (ii) bank profitability and asset quality risk linked to further deterioration in credit quality – materialising through negative shocks to aggregate demand in a number of EU countries amid a negative price shock originating from commodity markets, which contribute to negative nominal growth;
- (iii) the risk of renewed tensions in euro area sovereign debt markets due to rising concerns about debt sustainability – materialising through an increase in long-term interest rates and declining stock prices; and

⁶² The tools employed are: (i) a forward-looking solvency analysis, similar to a top-down stress test, for euro area banks; and (ii) a forward-looking analysis of the assets and liabilities side of the euro area insurance sector. For a more detailed description of the tools, see Henry, J. and Kok, C. (eds.), "A macro stress-testing framework for systemic risk analysis", *Occasional Paper Series*, No 152, ECB, October 2013, as well as "A macro stress testing framework for bank solvency analysis", *Monthly Bulletin*, ECB, August 2013.

(iv) the risk of an adjustment in the shadow banking sector – propagated to the euro area banking sector through lower asset valuation, a reduced access and an increased cost of market-based financing, which puts constraints on the loan supply and reduces the value of bank bonds.

The materialisation of the first and second risks, identified as medium-level systemic risks, is considered more likely than the materialisation of the third and fourth risks, which are deemed to be potential systemic risks.

Table 3.1

Mapping main systemic risks into adverse macro-financial scenarios

Risk	Scenario	Key assumptions driving impact on GDP
Abrupt reversal of compressed global risk premia amplified by low secondary market liquidity	Global risk aversion scenario	Shocks to risk aversion and investor confidence worldwide fuelling stock price declines, widening of corporate bond spreads, and lower euro area foreign demand
Weak profitability prospects for banks and insurers in a low nominal growth environment, amid slow progress in resolving problem assets	Weak bank operating environment scenario	Shocks to private investment and consumption
Rise of debt sustainability concerns in the sovereign and corporate sectors amid low nominal growth	Sovereign debt crisis scenario	Renewed rise in sovereign bond yields to elevated levels and stock price declines
Prospective stress and contagion effects in a rapidly growing shadow banking sector	Shadow banking spillover scenario	Reversal of the improvement in euro area bank funding conditions, leading to higher money market rates and funding cost to the real economy

Global risk aversion scenario

The first adverse scenario reflects the risk of an abrupt reversal of investor confidence and risk aversion worldwide. In the risk aversion scenario, a negative confidence and stock price-driven shock emanating from the United States is assumed. Simultaneously, adverse effects are assumed to materialise in major emerging markets, namely a financial market shock accompanied by a slowdown of potential GDP growth. These shocks, in turn, would lead to a recession in the United States and a sharp slowdown in key emerging market economies, and would – via trade and confidence spillovers – have negative implications for the global economic outlook. This effect also includes the impact of derived increases in oil and other commodity prices. In addition, the reversal of the search for yield is assumed to lead to a marked worldwide increase in corporate bond spreads from their current low levels.

In this scenario, the shock to US stock prices amounts to -18% in the fourth quarter of 2014, with stock prices assumed to remain at this distance to the baseline until end-2016. The shock to corporate bond prices, in turn, corresponds, on average, to a haircut of around -4% on banks' corporate bond holdings. The resulting negative impact on the EU's external demand, derived with the NiGEM model,⁶³ amounts to -7.4% by end-2016, relative to the baseline.

⁶³ While NiGEM is used to capture the spillovers from trade endogenously through its trade variables, it does not feature endogenous mechanisms for direct financial spillovers via e.g. confidence channels. Therefore, a GVAR model, as well as judgement, is used to estimate the financial spillovers from the US equity price shock to the global economy. For details on the GVAR model, see Dees, S., di Mauro, F., Pesaran, M.H. and Smith, L.V., "Exploring the International Linkages of the Euro Area: A Global VAR Analysis", *Journal of Applied Econometrics*, Vol. 22, 2007, pp. 1-38.

The impact of the global shock on the euro area economies is subsequently derived using stress-test elasticities (STEs).⁶⁴ The scenario translates into an overall drop in real euro area GDP, to 3.1% below baseline levels by end-2016. The real economic impact differs considerably across countries (ranging from -1.0% to -5.7% deviation from baseline levels at the end of 2016), depending, in particular, on their respective export orientation and sensitivity to commodity price shocks.

Weak bank operating environment scenario

In order to capture the risks related to weak profitability and the slow resolution of asset quality issues, this scenario involves country-specific negative shocks to aggregate demand in the form of an imposed slowdown in fixed investment and private consumption. Prices of oil and other commodities are assumed to remain strongly depressed with respect to the baseline scenario, which, on one hand, supports real economic growth, but on the other, puts an additional downward pressure on inflation and increases, in real terms, the debt-servicing burden of the non-financial sector. The negative inflation further reinforces the contraction of aggregate demand, as consumption and investment are deferred in expectation of lower future prices.

The impact of the weak euro area bank operating environment scenario has again been derived using the STE model framework. Overall, the real euro area GDP stands -1.8% below the baseline level by end-2016. The real economic impact differs considerably across euro area countries (ranging from -1.0% to -5.6% deviation from baseline levels at the end of 2016).

Sovereign debt crisis scenario

The sovereign debt crisis scenario envisages a renewed increase in euro area sovereign bond yields to elevated levels, as well as expected co-movements of other asset prices (stock prices, in particular). The bond yield shocks have been calibrated at a 1% probability level for the aggregate euro area sovereign credit spreads. To that end, a non-parametric simulation approach has been employed to simulate the joint forward distribution of bond yields and stock prices over a horizon of 60 business days. The underlying sample covers the period between 3 August 2012 and March 2015, with the starting point chosen so as to account for the significant regime change that was likely to have been introduced by the ECB's announcement regarding OMTs on 2 August 2012. However, this sample may not be fully informative for future developments, as – going forward – the low yields of euro area sovereign bonds would be further supported by the expanded asset purchase programme of the ECB. This approach may also not fully reflect the tail risks related to the recent political developments in Greece.

⁶⁴ Stress-test elasticities are a multi-country, EU-wide simulation tool. STEs are based on impulse response functions (from ESCB central banks' models) of endogenous variables to pre-defined exogenous shocks. The STEs furthermore incorporate intra-EU trade spillovers.

Long-term government bond yields are assumed to increase, and to retain a constant spread over the baseline over the horizon until the end of 2016. The adverse spread over the baseline for the euro area as a whole equals 50 basis points (nominal GDP, weighted average). The implied increase in government bond yields in all countries ranges from 2 to 155 basis points, with the most pronounced impact projected for Cypriot, Greek, Hungarian and Portuguese sovereigns.

The slope of national yield curves relative to the national ten-year benchmark bond yields (at the cut-off date of 31 December 2014) is used to transpose the simulated shock to maturities other than ten years. It is furthermore assumed that interest rates for all maturities remain at such higher levels until the end of 2016.

Next to the implied shocks to government bond yields, the resulting shock to stock prices derived from the simulation ranges from -1.5% to -25% across the euro area countries, with the strongest negative impact observed in Austria, France, Greece and Portugal. The weighted average impact on stock prices across the euro area countries amounts to -12%.

Finally, based on estimated regressions of credit default swap (CDS) spreads on long-term government bond yields, country-specific shocks to CDS spreads have been determined by the calibrated shocks to ten-year government bond yields.

The rise in sovereign bond yields, or declines in the prices of these bonds, along with other related asset price shocks, has three main effects on banks' profit and loss accounts.

First, it implies marking-to-market valuation losses on banks' sovereign exposures in the trading book, as well as in the portfolios of exposures designated as available for sale (AFS) or at fair value through profit or loss. End-2016 transitory provisions of the Capital Requirements Regulation (CRR) are applied with respect to the phasing-out of the prudential filters related to unrealised losses on AFS exposures.⁶⁵ By contrast, sovereign exposures not subject to marking to market are not stressed.

Second, the increase in sovereign credit spreads, via its impact on money market rates and CDS spreads, raises the cost of banks' funding.

Third, the country-specific shocks to interest rates and stock prices have direct implications for the macroeconomic outlook, which in turn affects banks' credit risk.

The effect of these assumptions on GDP is derived using the STEs: by end-2016, euro area-wide real GDP stands at -0.2% below baseline levels.

⁶⁵ The valuation haircuts are calibrated to the new levels of government bond yields, using the sovereign debt haircut methodology applied in the EBA/SSM 2014 stress-test exercise, and assuming that 40% of the mark-to-market loss on the available-for-sale sovereign debt exposures would be deducted from regulatory capital. The exemption from the phase-out of the AFS prudential filters, provided in the CRR, is assumed not to be applicable.

Shadow banking spillover scenario

The shadow banking spillover scenario considers the spillovers from the non-bank financial sector to the EU banking sector via the funding channel and lower asset valuations. The loss of confidence in the shadow banking sector triggered by an abrupt drop in returns on investment in that sector would lead to a reversal of the improvement in euro area banks' funding conditions, as observed since mid-2013, especially in the countries where the sovereign remains under stress. This would manifest itself through a set of shocks to money market interest rates, asset prices and credit costs for the private sector in the EU Member States. Banks are assumed to maintain access to market-based funding; however, they would be able to do so only at materially higher funding spreads.

The impact of distress in the non-bank financial sector on asset prices has been calibrated using statistical simulations which start with an assumption that returns on investment in the non-bank financial sector would fall abruptly. That initial drop in the valuation of the shadow banking sector would correspond to the 1% probability level. The response of other asset prices, notably stock prices and bond prices, would be consistent with that initial drop. The valuation of exposures held by banks in the portfolios subject to marking to market would be depressed, with negative effects on banks' capital.

Owing to the role of non-bank financial institutions as providers of wholesale funding to the EU banking sector, the loss of confidence in these institutions would trigger a reduction of the funding available to banks. This would, in turn, cause a deterioration of bank funding conditions and affect the banking sector through three channels.

First, a shock of 80 basis points to the three-month EURIBOR captures the risk of worsening conditions in money markets. It emerges in the fourth quarter of 2014, and persists for the duration of the scenario.

Second, banks affected by funding constraints are assumed to increase the cost of extending credit to the private sector and to limit the supply thereof. To account for this effect, a set of country-specific shocks to the cost of corporate credit (via the user costs of capital) and to interest margins on loans to households (via the financial wealth of households) is considered.⁶⁶

Third, the rolling-over of maturing wholesale funding at higher spreads directly erodes the net interest margins of the banks.

The effect of these assumptions on GDP is derived using the STEs: by end-2016, euro area-wide real GDP stands -0.3% below baseline levels.

Table 3.2 summarises the scenarios in terms of their resulting impact on euro area GDP, expressed in percentage point deviations from baseline growth rates (along

⁶⁶ The country-specific shocks are calibrated taking into account the plausible further fragmentation of funding markets (and differentiation in credit conditions for the private sector) across EU Member States. In addition, funding of the non-financial sector by the shadow banking sector may be curtailed; this transmission channel is not taken into account in this scenario due to data and model limitations.

with the deviations from baseline GDP levels at end-2016).⁶⁷ The baseline scenario is aligned with the 2015 Winter forecast of the European Commission. The impact of the adverse scenarios is assumed to start generating stress as from the fourth quarter of 2014.

Table 3.2

Overall impact on euro area GDP growth under the baseline scenario and adverse shocks

	2013	2014	2015	2016	Q4 2016
Baseline (EC Winter forecast, annual growth rates in percent)	-0.5	0.8	1.3	1.9	
		percentage point dev. from baseline growth			% dev. from baseline level
Global risk aversion scenario		-0.1	-1.6	-1.5	-3.1%
Weak bank operating environment scenario		-0.1	-1.1	-0.7	-1.8%
Sovereign debt crisis scenario		0.0	-0.1	-0.1	-0.2%
Shadow banking spillover scenario		0.0	-0.1	-0.2	-0.3%

Solvency results for euro area large and complex banking groups

The impact on bank solvency is broken down into that on individual profit and loss results, on the one hand, and that stemming from cross-institutional contagion, on the other.

The impact of the four scenarios on the profit and loss accounts of large and complex banking groups (LCBGs) in the euro area⁶⁸ (and on solvency positions) is obtained from a projection of the main variables that determine banks' solvency, such as the credit risk parameters, profits and risk-weighted assets. Having computed the effects of the various shocks on the above-mentioned balance sheet components, the overall impact is expressed in terms of changes to banks' common equity Tier 1 (CET1) capital ratios.

Under the baseline scenario, the LCBGs' aggregate CET1 capital ratio is projected to decrease from 11.4% in the third quarter of 2014 to 11.3% by end-2016 (see Chart 3.43). The positive retained earnings (contribution of 3.0 percentage points to the aggregate CET1 capital ratio) are more than sufficient to absorb the flow of impairment charges on loans and other financial assets (contribution of -1.6 percentage points to the aggregate CET1 capital ratio). However, the concurrent increase in risk-weighted assets and other effects – related mainly to the gradual phasing-in of the requirements set out in the Capital Requirements Directive IV (CRD IV) – lead to an overall decline in the CET1 capital ratio.

⁶⁷ The percentage point deviations from baseline growth and the percentage deviation from baseline levels are two different ways of presenting the same scenario profile. The percentage deviations from baseline levels at the end of the horizon broadly correspond to a simple sum of the percentage point deviations from growth rates along the horizon.

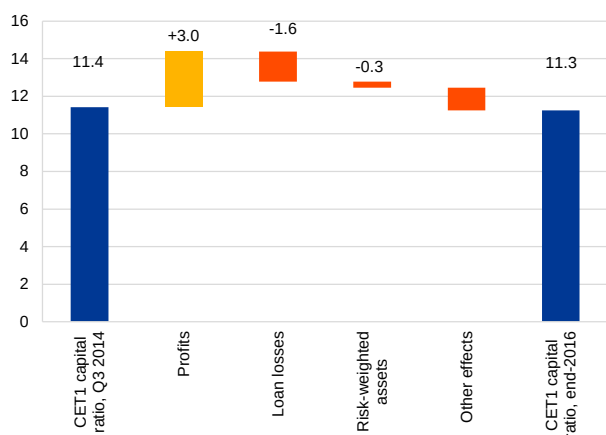
⁶⁸ The LCBGs include 16 euro area banking groups. The assessment uses data collected in the course of the ECB comprehensive assessment exercise of 2014, updated, where feasible, with publicly available data on bank capital positions at the end of 2014.

Chart 3.43

Relatively modest impact on CET1 capital ratios under the baseline scenario

Average contribution of changes in profits, loan losses and risk-weighted assets to the CET1 capital ratios of euro area LCBGs under the baseline scenario

(percentage of CET1 capital ratio and percentage point contribution)



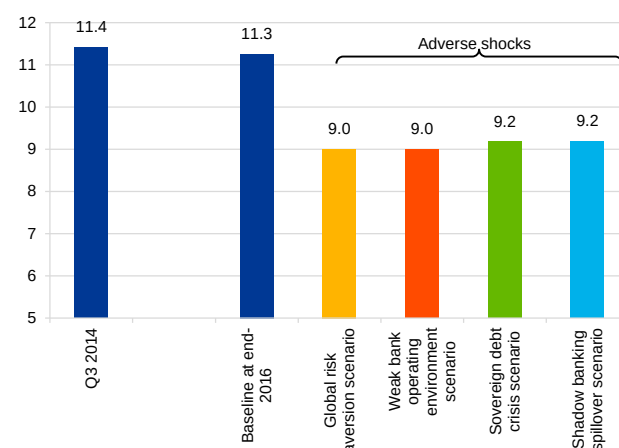
Sources: Individual institutions' financial reports, EBA, ECB and ECB calculations.

Chart 3.44

The global shock scenario and the weak bank operating environment scenario have the strongest adverse impact

Average CET1 capital ratios of euro area LCBGs under the baseline and adverse scenarios

(2014-2016; percentages, average of euro area LCBGs)



Sources: Individual institutions' financial reports, EBA, ECB and ECB calculations.

The end-2016 impact on banks' solvency positions under the adverse scenarios is illustrated below (see Chart 3.44). Of all four distinct scenarios, the global shock scenario and the weak bank operating environment scenario have the strongest adverse impact on euro area banks' solvency positions: the aggregate CET1 capital ratio of LCBGs is projected to fall by about 2.4 percentage points to 9.0% by end-2016. The sovereign debt crisis scenario, in spite of the limited impact on GDP, implies that the banks' aggregate CET1 capital ratio would drop to 9.2%, similar to the outcome of the shadow banking spillover scenario. The limited variability of the impact of the scenarios is to some extent driven by the significant contribution of other effects, which are related – as under the baseline scenario – mainly to the transition to the CRD IV capital regime. In addition, the methodological assumptions of this exercise are largely consistent with the EBA's EU-wide stress-test exercise, which implies that several items in the banks' profit and loss accounts are projected using historical values.⁶⁹

The drop in the capital ratio with respect to the result of the baseline scenario is driven mainly by the reduction of pre-provision profits, which are projected to contribute between 1.9 and 2.2 percentage points to the aggregate CET1 capital ratio. This reduction would be most pronounced under the global risk aversion scenario. Loan losses are projected to increase to between 1.9 and 2.0 percentage

⁶⁹ For example, cumulative net trading income is projected as an average net trading income over the most recent five years, less two standard deviations of net trading income. Similarly, operating expenses are held constant over the projection horizon.

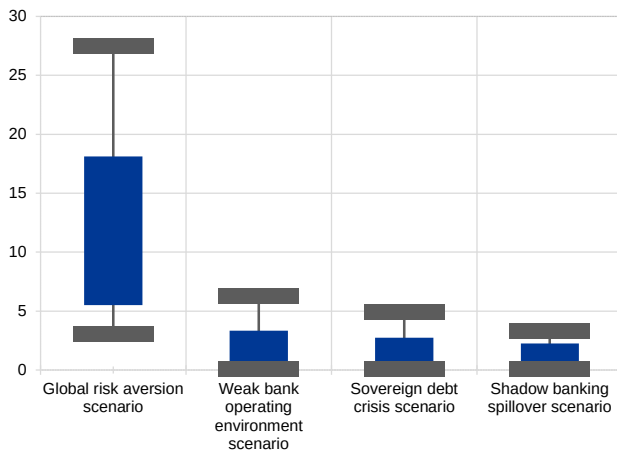
points of the CET1 capital ratio,⁷⁰ and an increase in risk-weighted assets would reduce the CET1 capital ratio by between 1.1 and 1.3 percentage points.

Chart 3.45

Impact of interbank contagion on bank capital ratios

Reduction of the CET1 capital ratio of euro area banks due to interbank contagion: dispersion across simulations

(basis points of CET1 capital ratio; box: interquartile range, bars: 10th-90th percentile range)



Sources: Individual institutions' financial reports, EBA, ECB and ECB calculations.

Adverse shocks to individual banks' solvency positions can lead to contagion effects via interbank liabilities.

This can happen if, for example, the failure of a bank to comply with a threshold capital level would imply losses for interbank creditors – resulting in additional system-wide losses. In the absence of detailed data on interbank exposures, publicly available information and dynamic network modelling are used to simulate instances where a financial institution can cause contagious effects throughout the financial system.⁷¹

The interbank contagion results are derived by applying such a methodology to the four adverse shocks considered above (see Chart 3.45).⁷² For the simulated networks with the strongest contagion effects, the system-wide CET1 capital ratio falls by about 0.27 percentage point in some countries under the global risk aversion scenario. Contagion effects are more muted under the other three scenarios. Although the aggregate capital levels recorded under the four

scenarios are similar, the group of vulnerable banks that fuel the propagation of interbank contagion differs, leading to these material differences in the contagion effects. Moreover, should the banks respond to capital pressure by shedding assets at fire-sale prices, the impact on the CET1 capital ratio would be larger.

⁷⁰ This result is to some extent driven by the assumption, also consistent with the EBA's stress-testing methodology, that the probabilities of default would not decrease over the stress-test horizon, even if the model result would suggest otherwise.

⁷¹ The exercise is based on a sample of banks participating in the ECB's 2014 comprehensive assessment. Interbank exposure networks are generated randomly on the basis of banks' interbank placements and deposits, taking into account the geographical breakdown of banks' activities. For a more detailed description of the methodology, see Halaj, G. and Kok, C., "Assessing interbank contagion using simulated networks", *Working Paper Series*, No 1506, ECB, 2013, and *Computational Management Science* (10.1007/s10287-013-0168-4).

⁷² Two limitations on the maximum exposure that is allowed vis-à-vis an individual counterparty are embedded into the network simulators, following the prescriptions in Article 111 of Directive 2006/48/EC. First, an interbank exposure of each bank cannot exceed 25% of its regulatory capital. Second, the sum total of the interbank exposures of a bank, individually exceeding 10% of its capital, cannot be higher than 800% of its capital.

Box 8

Measuring the propagation of macro-financial shocks at the level of individual euro area financial institutions

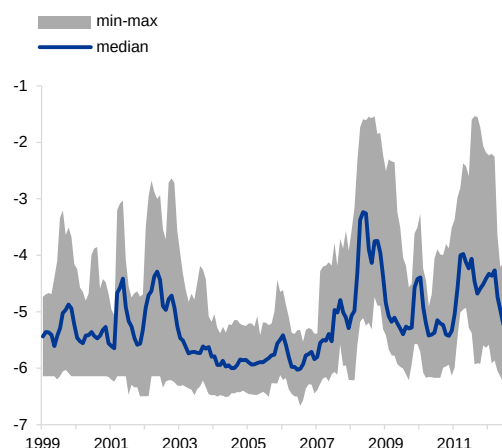
The global financial crisis has highlighted that impaired financial institutions can significantly propagate aggregate or institution-specific stress to the overall economy. With financial contagion a key conduit of these impacts, data at the individual firm level are crucial to account for both cross-firm and macro-financial linkages. While traditional stress-testing methods offer considerable insights into these interdependencies, their findings can be complemented by the use of reduced-form models that exploit past empirical regularities. One such framework, drawing on the infinite-dimensional vector autoregressive (IVAR) framework of Chudik and Pesaran, includes both firm-level risk indicators and a global set of macroeconomic variables.⁷³ This approach offers a means of linking firm-level default probabilities to aggregate international macro-financial variables.

Chart A

Financial stress at 35 large financial firms in the euro area has varied widely over the last 15 years

Default probabilities for 35 firms in the sample

(July 1999 – Dec. 2012; log-odd ratio transformation, monthly data)



Source: Kamakura.

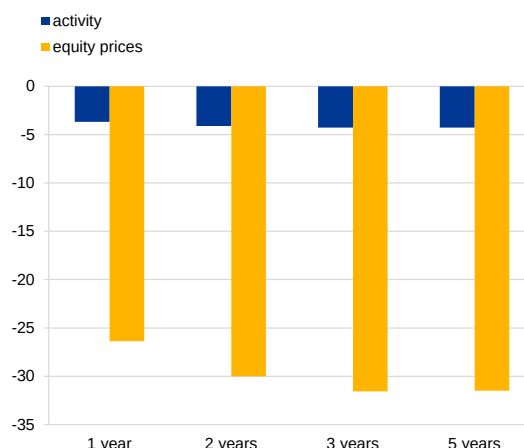
Notes: As the default probabilities (DP) are defined on the interval $[0; 1]$, a log-odd transformation is used for firm i ($x_{i,t}$) defined on the interval $(-\infty; +\infty)$ for each firm: $x_{i,t} = \ln\left(\frac{DP_{i,t}}{1-DP_{i,t}}\right)$.

Chart B

A US equity shock has strong real and financial spillovers to the euro area economy

Impact of a negative US equity shock (20% decline) on euro area equity prices and economic activity

(percentage points)



Note: Economic activity is measured by industrial production (monthly data).

Firm-level dynamics during the crisis suggest a strong role for heterogeneity. On aggregate, default probabilities tended to peak towards the end of 2008 during the period following the Lehman Brothers bankruptcy (see Chart A).⁷⁴ At the same time, some firms experienced stronger distress

⁷³ See Chudik, A. and Pesaran, H., "Infinite dimensional VARs and factor models", *Journal of Econometrics*, Vol. 163, 2011, pp. 4-22, and Al-Haschimi, A., Dées, S., di Mauro, F. and Jančoková, M., "Linking distress of financial institutions to macro-financial shocks", *Working Paper Series*, No 1749, ECB, 2014.

⁷⁴ Due to the lack of harmonised bankruptcy data, the exercise presented here is based on 12-month-ahead default probability measures obtained from the Kamakura Corporation for 35 euro area financial firms (banks and insurance companies). Altogether, the firms selected capture more than three-quarters of all assets in the Kamakura database for financial firms in the eight largest euro area countries.

ing the euro area sovereign tensions in early 2012, while other firms showed high stress episodes in the early 2000s.

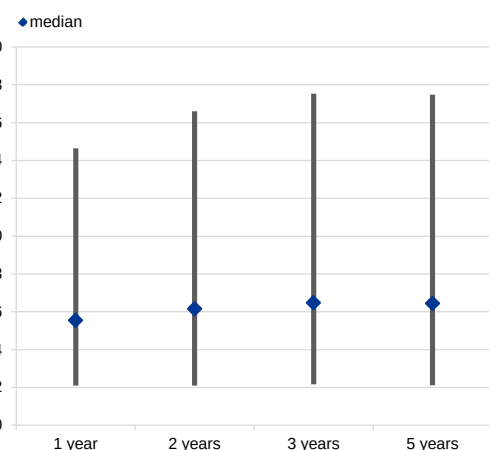
Building on this evidence, the international transmission of shocks can be assessed within the global IVAR framework of Al-Haschimi et al. through the lens of two simulations: (i) a simulated decline in US equity prices by 20% (which is close to the decline in stock prices observed following the Lehman Brothers bankruptcy); and (ii) the impact of a shock to the default probabilities of globally systemically important financial institutions (G-SIFIs) – each presented in turn below.

art C

the US equity shock also leads to a significant increase in financial stress in euro area G-SIFIs

Impact of a negative US equity shock (20% decline) on the default probability of euro area financial institutions

absolute change in log-odd ratio)



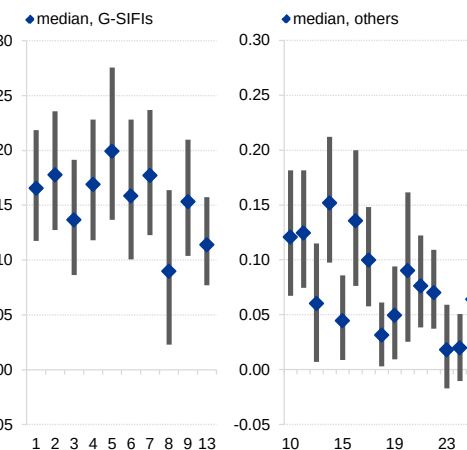
S: Default probability in log-odd ratio transformation (see the notes to part A). The bars denote min-max ranges. The diamond shows the median response distribution among the 35 financial firms.

part D

Financial stress in euro area G-SIFIs has significant spillover effects on other large euro area banks

Impact of a one-standard-deviation shock to the default probabilities of the G-SIFIs on euro area financial institutions' default probabilities

absolute change in log-odd ratio)



As a default probability in log-odd ratio transformation (see the notes to Table 1). The diamonds show the peak median response of each firm over the first 60 months. The bars denote the 10th–90th percentile ranges around the peaks. The left panel corresponds to the default probabilities of the G-SIFIs in the sample. The right panel corresponds to the default probabilities of the next largest 15 financial institutions. The x-axis shows the number of each firm, the firms being sorted from the largest by assets to the smallest. Firm 13 is a G-SIFI.

Results from the first simulation suggest that a 20% decline in US equity prices has a strong international spillover effect on the euro area economy and financial institutions. Euro area equity prices decline and the shock to US equities also affects real variables, with euro area industrial production declining by 3.4% after one year and remaining 4.2% below the level reached without the shock after five years (see Chart B). Importantly, the adverse financial shock in the United States has sizeable spillover effects on euro area financial institutions, albeit with marked heterogeneity among the responses across firms. A negative shock to equity prices in the United States has an adverse impact on the default probabilities of euro area financial firms that is of an economically significant magnitude when considering recent historical episodes such as the financial crisis (see Chart C). Moreover, the results show that the model can capture significant spillovers between financial firms, as the transmission of the macro-financial shocks to the financial institutions is amplified by the cross-firm linkages.

The second simulation suggests that a shock to the default probabilities of the euro area G-SIFIs yields significant and heterogeneous impacts on other institutions (see Chart D). There is a positive and statistically significant spillover of firm-level distress from the G-SIFIs to the majority of – typically larger – financial institutions. By contrast, some smaller firms lack statistically significant responses in their default probabilities.⁷⁵ Notably, the median responses of some of the largest non-G-SIFI financial institutions are of a similar order of magnitude to the responses of the G-SIFIs themselves, while other financial firms experience a much more muted spillover or contagion effects from the distress of G-SIFIs. This points to the importance of using firm-level data to capture essential differences in institution-specific responses to financial stress.

All in all, these applications of the methodology suggest heterogeneous impacts of common shocks, as do the applications to systemically important institutions. An analysis of firm-level data is essential in this regard, as assessments using aggregate banking sector-level indicators fail to differentiate between the varied impacts of both common and idiosyncratic shocks. With such firm-specific risk, the considerable granularity in the current macroprudential toolkit appears well suited to assessing financial stability risks, with a capacity to strengthen the resilience of the financial system accordingly.

Assessing the resilience of euro area insurers

The assessment of the impact of the main euro area financial stability risks on large euro area insurers is conducted using publicly available data for 11 major euro area insurance groups up to the fourth quarter of 2014. It relies on a market-consistent approach to the quantification of risks, and is applied to insurance corporations, to both assets and liabilities. Due to the lack of sufficiently granular data, this impact assessment aims to spell out the main risks in economic terms, rather than trying to gauge the impact in terms of prudential solvency ratios.

The following market, credit and underwriting risks are assessed: (i) an increase in interest rates; (ii) a fall in equity and property prices; (iii) a deterioration of the creditworthiness of borrowers through a widening of credit spreads for marketable instruments; (iv) an increase in lapse rates;⁷⁶ and (v) an increase in loss rates on loan portfolios. This assessment uses two scenarios that are most relevant for insurers – the global risk aversion scenario and the sovereign debt crisis scenario – as well as a joint scenario which combines individual scenarios used in the banking

⁷⁵ Note that in Chart D, the responses of the largest 25 firms are shown to improve readability. The impulse responses of the remaining ten smallest firms all have positive peak median responses, but about half are not statistically significant. This is likely due to smaller financial institutions being relatively more affected by local shocks, which are not explicitly modelled in this framework (for full results, see Al-Haschimi et al., loc. cit., 2014).

⁷⁶ The lapse rate is defined as the fraction of contracts terminated prematurely by policyholders.

section to illustrate the adverse effects of a scenario in which all the previously described shocks materialise at the same time (see Table 3.3).⁷⁷

Against this background, the risks for insurance companies are transmitted through three channels, namely through (i) valuation effects on financial securities and liabilities owing to changes in sovereign yields and swap rates, (ii) sales of assets due to unforeseen payments resulting from increased lapse rates and (iii) changes in the credit quality of loan portfolios.

Table 3.3

Main parameters for the assessment of euro area insurers

	Baseline	Global risk aversion	Sovereign risk resurgence	Joint scenario
Average euro area increase in short-term interest rates (basis points)	0	80	80	80
Average euro area increase in long-term government bond yields (basis points)	0	7	50	57
Average add-on in credit yields of corporate bonds (basis points)	0	167	0	167
Shock to equity prices (%)	0	-15	-12	-26
Average add-on in lapse rates (%)	0	1.1	0	2.2
Average cumulative loss rates on the loan portfolios over two years (%)	0.18	0.58	0.54	0.59

In this context, a number of simplifying assumptions had to be made for this exercise.

First, decreases in market values of insurance corporations' holdings of shares, bonds and property are assumed to occur instantaneously, before institutions have an opportunity to adjust their portfolios. This implies that no hedging or other risk-mitigation measures⁷⁸ were taken into account; consequently, losses may be overestimated.

Second, available granular data (e.g. on investment in sovereign bonds, broken down by jurisdiction, on investment in corporate bonds and on loans, broken down by credit ratings, and on liabilities and debt assets, broken down by maturity) were used wherever possible, but broad aggregates of financial investments were used in some instances.

Third, all income and expenses related to the underwriting business are assumed to be fixed. For example, reduced demand for insurance products is not taken into account, and each maturing contract is expected to be replaced, so that the underwriting income of each insurer remains constant. The underwriting component of income is stressed only in the form of increasing lapse rates (see Table 3.4).

⁷⁷ However, it is important to stress that some of the shocks envisioned under the individual scenarios would cancel out to a certain extent, for instance, oil and commodity prices which are assumed to increase under the global risk aversion scenario and to fall relative to the baseline under the weak bank operating environment scenario. Under the joint scenario, the euro area's real GDP would fall below the baseline by, overall, -5.4% by end-2016.

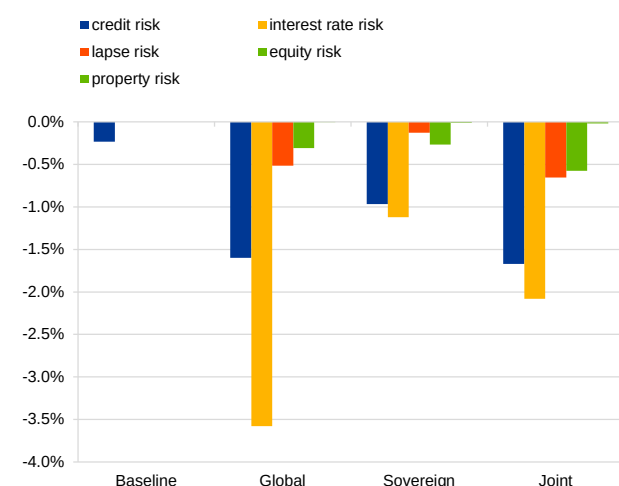
⁷⁸ For example, interest rate risk hedging, asset-liability matching techniques and counter-cyclical premia (to dampen the effect of temporary adverse interest rate shocks through offsetting changes in the valuation of liabilities).

Table 3.4**Technical assumptions regarding the individual risk drivers of insurers' balance sheets**

Risk drivers	Technical assumptions
Credit risk	Credit risk assessment carried out using (i) breakdowns by rating or region, depending on data availability, and (ii) loss rate starting levels, which are stressed using the same methodology as applied for assessing the resilience of euro area banks.
Interest rate risk transmission	Sensitivities to interest rate changes computed for each interest-rate-sensitive asset and liability exposure. Relevant yield curves used to project asset and liability cash flow streams, to calculate internal rates of return, and to discount the cash flows using yield curve shocks.
Haircut definition	Haircuts for debt securities derived from changes in the value of representative securities implied by the increase in interest rates under each shock and uniformly applied across the sample of large euro area insurers. Valuation haircuts to government bond portfolios estimated on the basis of representative euro area sovereign bonds across maturities. Haircuts for corporate bonds derived from a widening of credit spreads.
Lapse risk	Lapse risk quantified by projecting insurers' cash flows over a two-year horizon, assuming a static composition of contracts and the reinvestment of maturing assets without a change in the asset allocation. Lapse rates linked to macroeconomic variables ⁷⁹ . Unexpected component of lapses ⁸⁰ leads to surrender payments ⁸¹ . In case of negative cash flows from surrender payments, the insurer is obliged to use cash reserves or sell assets to meet obligations. Lapse risk equals the cash or other assets needed to cover surrender payments.
Other assumptions specific to the sensitivity of investment income	Investment income earned from reinvested assets shocked on the basis of investment income earned at the beginning of the simulation horizon. All other assets assumed to earn the initial investment income throughout the simulation horizon. Maturing fixed income assets reinvested retaining the initial asset composition. Underwriting business component of operating profit assumed to remain constant throughout the simulation horizon. No distribution of dividends assumed.

Chart 3.46**Insurers vulnerable to interest rate risk****Change in the net asset values of large euro area insurers under different scenarios**

(Q4 2014 – Q4 2016; percentage of total assets)



Sources: Individual institutions' financial reports and ECB calculations

Although the degree of vulnerability to the materialisation of macro-financial risks is heterogeneous across individual insurance groups, the results of this assessment confirm the importance of interest rate risk for the euro area insurance sector as the most important driver of the decline in net asset values across all adverse scenarios (see Chart 3.46). This result is particularly severe under the global risk aversion and the joint scenarios. Indeed, under these two scenarios, the interest rate risk implies a decline of 3.6% and 2.1% respectively in net asset values expressed as a percentage of total assets. Insurance companies also experience the most significant changes in their total net asset values under these two scenarios – with average total declines amounting to 5% and 6% respectively of their total assets. These results are mainly driven by the increase in interest rates, and by the flattening of the yield curve, combined with the shorter average duration of insurance companies' assets with respect to the duration of their

liabilities. Indeed, these factors cause insurers' assets to decrease faster than their liabilities, and thus lead to a decline of their net asset value as a percentage of total assets.

⁷⁹ Sensitivities of lapse rates to GDP and unemployment were derived by taking the mean of a number of elasticity values, collected from the literature (e.g. Honegger, R. and Mathis, C., "Duration of life insurance liabilities and asset liability management", *Working Paper*, Actuarial Approach for Financial Risks (AFIR), 1993; Kim, C., "Report to the policyholder behaviour in the tail subgroups project", *Technical Report*, Society of Actuaries, 2005; and Smith, S., "Stopping short? Evidence on contributions to long-term savings from aggregate and micro data", *Discussion Paper*, Financial Markets Group, London School of Economics, 2004) and from ECB calculations.

⁸⁰ The unexpected component of lapses is defined as the difference between the projected lapse rate and the average lapse rate reported by large European insurers.

⁸¹ It is assumed that 50% of the total amount represented by the extra lapse rates has to be paid (due to the existence of penalties in the contracts, which lower the insurers' risk).

Credit risk appears to be the second most relevant vulnerability for insurance companies. At the aggregate level, it implies an average change of between -1% and -1.7% in the insurers' net asset values across the adverse scenarios. This outcome is driven mainly by corporate credit risk.

Variations in equity price losses are largely related to the heterogeneous severity of the equity shocks applied across the adverse scenarios. The negative impact of the adverse equity price shocks ranges from 0.3% of total assets under the sovereign scenario to about 0.6% under the joint scenario.⁸² Finally, lapse risk-related losses are higher under the joint scenario, amounting to about 0.7% of total assets.

In addition to the scenarios considered in this report, which correspond to the main risks to financial stability in the euro area, euro area insurers would be vulnerable to a low interest rate environment. This is confirmed by the results of the EIOPA 2014 stress test,⁸³ which indicate that the impact of a low-yield scenario – while not as severe as that of a stress on asset values – would pose a challenge to insurers, in particular in some jurisdictions.

3.3 Continued progress in regulatory and macroprudential policy implementation

3.3.1 Macroprudential policy measures

This section considers the macroprudential measures that have been implemented in a number of euro area countries since November 2014. The measures introduced by the countries concerned can be grouped into three categories, real estate measures, systemic risk measures and reciprocation of measures.

Real estate measures

Real estate measures have been adopted with the aim of addressing undesirable developments in domestic property markets. Real estate typically represents a large proportion of banks' credit exposures, and of households' assets, thus making imbalances in this sector particularly important in terms of financial stability. In this regard, Ireland introduced limits on loan-to-value (LTV) and loan-to-income (LTI) ratios in order to increase the resilience of banks and households to property market risks.

In January 2015, the Central Bank of Ireland announced the introduction of new regulations on mortgage lending, following a public consultation process. The measures introduce proportionate limits on LTV and LTI ratios for both primary-dwelling-house (PDH) and buy-to-let (BTL) mortgages. The underlying rationale for

⁸² Owing to data availability, gross equity exposures (gross of unit-linked exposures) were used and, consequently, the equity risk may be overestimated.

⁸³ See "EIOPA insurance stress test 2014", EIOPA, 28 November 2014.

the regulations is the need to increase the resilience of Irish households and banks to residential real estate, in the context of the high exposure of these sectors to property, and given the fact that a significant share of new lending is taking place at high LTVs and there have been sharp movements in house prices. Furthermore, the objective of these regulations is to reduce the risk of adverse bank credit and house price spirals. There are different limits for different categories of buyers. For non-first-time buyers of PDHs, a limit of 80% LTV applies on new mortgage lending. For first-time buyers of PDHs, a limit of 80-90% LTV applies, depending on the value of the property. Different approaches have been taken for first-time buyers of lower-value properties and for other borrowers, so that access to credit for first-time buyers is not overly restricted, while at the same time the effectiveness of the regulations is maintained. For BTL mortgages, a limit of 70% LTV applies. Furthermore, there is a LTI limit of 3.5 times gross annual income, which applies to all new lending for PDH purposes. The proportionate caps allow a certain percentage of new lending above each of these limits, providing an appropriate balance between allowing sufficient flexibility yet maintaining prudent lending standards. The rationale behind adopting limits on LTV and LTI together is that the two measures complement each other, with the LTI addressing the borrower's loan affordability and the LTV addressing the lender's losses in the event of default. The Central Bank of Ireland also views such thresholds as a way of ensuring a greater degree of safety around the mortgage business. The regulations were introduced through legislation adopted in February 2015.

Systemic risk measures

A number of member countries have recently taken decisions on the level of a countercyclical capital buffer. This buffer is an instrument provided for in the Capital Requirements Regulation/Capital Requirements Directive IV (CRR/CRD IV). The requirement of a countercyclical capital buffer aims to achieve the broader macroprudential goal of protecting the banking sector against periods of excessive aggregate credit growth that have often been associated with the build-up of system-wide risk. It requires banks to increase capital at times when credit is growing rapidly. The buffer can be released when the economic cycle turns. As from January 2016, all Member States will be required to decide on banks' capital buffers on a quarterly basis (with Finland, Latvia and Slovakia having decided to implement this requirement as from the beginning of 2015).

In March 2015, Finland decided to set the countercyclical capital buffer at 0%. The decision of the Financial Supervisory Authority (FSA) is based on the analysis of the key indicators of systemic risk. In particular, although the credit-to-GDP ratio has exceeded its long-term trend, other important indicators for setting the countercyclical buffer – e.g. developments in housing prices, lending and the external balance of the economy – do not signal a rise in systemic risk. With protracted weak economic activity, credit growth has already subsided significantly.

In April 2015, Slovakia decided to set the countercyclical buffer rate at 0%. In its decision, Národná banka Slovenska argued that, over the past few years,

developments across the main leading indicators for setting the countercyclical capital buffer did not suggest that an increase in the rate was warranted. However, Národná banka Slovenska also highlighted that aggregate credit growth masks substantial divergence. While lending to the corporate sector in 2014 contracted for the third consecutive year, lending to the household sector continued to accelerate in the fourth quarter, with a year-on-year growth of 12%, albeit from a relatively low basis. In Slovakia's view, under these circumstances and at this stage, other, more targeted macroprudential measures (such as those in Národná banka Slovenska's recommendation of October 2014), rather than the countercyclical capital buffer, appear to be more appropriate.

In April 2015, Latvia decided to keep the countercyclical buffer rate at 0%. According to the Financial and Capital Market Commission's calculations, the deviation of the credit-to-GDP ratio from its long-term trend remains significantly negative, and the buffer guide calculated in accordance with Capital Requirements Regulation is 0%. In fact, credit has been contracting since mid-2009, as a result of both demand and supply-side factors, and may act as a drag on the economic recovery and bank profitability going forward. After having fallen substantially in 2009, residential property prices have been recovering at a moderate pace and remain well below the pre-crisis level.

Reciprocation of macroprudential measures

In accordance with the Capital Requirements Regulation, reciprocation of a macroprudential measure refers to the application of the measure by other countries for bank activities in the country that initially adopted that measure. Lack of reciprocation may open up the possibility of regulatory arbitrage by cross-border banking groups that are able to shift their activities between group entities across borders and as a result, reduce the effectiveness of the macroprudential measure (see also Special Feature A that discusses cross-border spillover channels). With few exceptions, reciprocation by other Member States is typically voluntary.

In December 2014, De Nederlandsche Bank (DNB) notified its decision to reciprocate the measure on residential mortgage lending adopted by the Nationale Bank van België/Banque Nationale de Belgique (NBB). In December 2013, NBB had introduced a 5-percentage point add-on to the risk weights of Belgian residential mortgage loans calculated by banks that apply the internal ratings-based (IRB) approach. This was prolonged in March 2014. In NBB's assessment, the main reasons for introducing the measure were the significantly lower capital requirements applicable to residential mortgages for credit institutions relying on the IRB approach than for those applying the Basel II framework. DNB decided to apply the same measure to mortgages on residential real estate issued through branches of Dutch banks located in Belgium. Given the fact that the activities of branches of Dutch Banks in Belgium are limited, the impact of the measures is expected to be very small. Most activities of Dutch banks in Belgium are performed through subsidiaries, which are already subject to NBB supervision.

3.3.2 Regulatory framework

This section provides an overview of a number of regulatory initiatives in the banking, insurance and market spheres that are of primary importance for enhancing financial stability in the EU. Importantly, in addition to strengthening the resilience and loss-absorption capacity of the whole financial system, the finalisation of the ongoing initiatives will significantly reduce the regulatory uncertainty regarding capital and liquidity rules for banks and other financial institutions as well.

Regulatory initiatives for the banking sector

The key elements of the prudential standards for banks and banking groups operating at the global level, as well as the framework for the supervisory review and evaluation process, are set out in the international capital and liquidity standards (Basel III) developed by Basel Committee on Banking Supervision (BCBS). These standards are implemented in the EU via the Capital Requirements Regulation/Capital Requirements Directive IV (CRR/CRD IV). Importantly, the prudential rules are generally applicable to all credit institutions and investment firms in the EU. While the comprehensive overhaul of banking regulation triggered by the financial crisis is coming to an end, certain remaining elements of Basel III and the CRR/CRD IV framework are still subject to finalisation and calibration, including parts of the liquidity regulation, the leverage ratio provisions and the securitisation rules.

The EU has been making significant progress with regard to the implementation of the international framework for **liquidity regulation**. In January 2015, the EU published the Delegated Act in the Official Journal for the liquidity coverage ratio (LCR).⁸⁴ The final calibration of the LCR reflects a number of EU specificities in relation to the definition of high-quality liquid assets and the importance of banks for the financing of the real economy. In the EU, the LCR will enter into force in October 2015, with a starting level of 60%, and will be phased-in gradually to reach 100% in 2018.⁸⁵ At the current juncture, the impact of the LCR on the functioning of markets, and on the real economy, appears to be largely muted. This is supported by the evidence provided in a report published by the European Banking Authority (EBA) in January 2015, and may be related to the compliance of the majority of banks with the LCR.⁸⁶

As regards the net stable funding ratio (NSFR), the Basel Committee published a final document in October 2014, which introduced changes with regard to the treatment of short-term financing transactions with financial counterparties, as well as

⁸⁴ See Commission Delegated Regulation (EU) 2015/61 of 10 October 2014 to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for Credit Institutions, [Official Journal of the European Union, L 11, 17 January 2015, pp. 1-36](#).

⁸⁵ Under the Basel agreement, the LCR would need to reach 100% as of 1 January 2019. However, the European Commission may delay full implementation by one year, subject to a report by the EBA in June 2016 (see Article 461 of the CRR).

⁸⁶ See “[Second Report on impact assessments for liquidity measures under Article 509\(1\) of the CRR](#)”, European Banking Authority, December 2014.

for derivative exposures and initial margins.⁸⁷ With respect to the latter, the BCBS agreed to conduct a quantitative analysis in view of the ongoing implementation of regulatory requirements for the margining of derivatives. In the EU, the CRR mandates the EBA to conduct a comprehensive impact and calibration assessment of the NSFR, which it will submit to the Commission by the end of 2015.

The ECB is supporting the direction and work on liquidity regulation at the international and the European level. The need for liquidity regulation is one of the main lessons learnt from the financial crisis when many banks recorded significant shortcomings in their liquidity risk management. The insufficient holdings of liquid assets and excessive maturity mismatches in the balance sheets of some banks contributed considerably to the spreading of stress and instability throughout the financial system. The ECB is actively involved in the assessment of the market impact of the NSFR, with a view to understanding its impact on the transmission of monetary policy and the interaction with other regulatory standards, as well as the cumulative effects of regulation on banks and markets.

Work on the **leverage ratio** is progressing on various fronts. The Basel Committee is currently working on final aspects regarding the definition of the leverage ratio and will consider the calibration this year, with a view to migrating to Pillar 1 treatment on 1 January 2018. At the European level, the EBA has started work on its report on the impact and calibration of the leverage ratio. This will include the question as to whether the leverage ratio should differ for institutions following different business models. If introduced as a binding requirement in Pillar 1 and calibrated correctly, the leverage ratio will be a useful complementary measure for reinforcing capital requirements. The aim is to ensure systemic stability and allow the authorities responsible for macroprudential supervision to address risks stemming from the build-up of excessive leverage.

With regard to **securitisation**, work on simple, transparent and standardised securitisation has gained momentum this year, after the European Commission had announced in its work programme for 2015 that it will develop an EU framework for such instruments. The Commission launched a public consultation in mid-February, to seek input on the key components of such a framework; the ECB responded to this consultation together with Bank of England at the end of February. The ECB supports the Commission's proposal to implement such a framework, as this would encourage the revival of the European securitisation markets in a sustainable manner and would support banks' diversification of funding sources, their continued lending to the economy and a better allocation of risk in the EU financial system.

In parallel to the ongoing initiatives on the finalisation of Basel III – CRR/CRD IV, the BCBS has embarked on a **strategic review of the capital framework** in response to concerns about excessive complexity and a potential lack of comparability regarding banks' capital ratios across jurisdictions, and across institutions more broadly. This work will consider the costs and benefits of basing regulatory capital requirements on banks' own models for credit, market, and operational risk.

⁸⁷ See "Basel III: the net stable funding ratio", Basel Committee, October 2014.

Options under consideration in this context include measures that increase transparency, as well as restrictions on modelling so as to increase the consistency of the capital framework. One potential strategy for reform would start from the premise that models can be repaired, and would therefore focus on seeking enhancements to them. By way of an alternative on the other extreme, one could start with the premise that models have fundamental shortcomings and must somehow be replaced. The final recommendations of the strategic review will probably fall between these two poles, in a “hybrid” approach. This will result in models being retained and enhanced where they work well, but where models do not work well, their use will be ruled out and alternative means of risk-weighting assets will be found.

The ECB is supportive of the ongoing work undertaken by the BCBS in this context. From a macroprudential perspective, it will be important that the strategic review – in addition to reducing the variability and increasing the comparability of capital ratios across institutions – also duly takes into account systemic considerations. Two areas of particular importance in this regard are that the review also aims to (i) address the variability of capital requirements over the cycle (pro-cyclicality) and (ii) ensure that the application of models does not result in a potential underestimation of risks and, consequently, a decline in the overall level of capital at the systemic level.

Furthermore, in a separate work stream, the BCBS has initiated work on risks linked to **sovereign exposures** that both the ECB and international standard-setting bodies consider an issue that needs, ideally, to be addressed at a global level. The ECB supports the potential revision of the regulatory framework by the BCBS in a careful, holistic and gradual manner. The work at the international level can, to a large extent, build on the analysis carried out by European Systemic Risk Board (ESRB), which published a full-fledged report on this issue on 10 March 2015. The report provides an overview of the current regulatory framework for sovereign and government-related exposures, the specific risks, the scale of banks’ and insurers’ exposures to sovereigns and explores a wide range of policy options to address these risks.

Finally, **misconduct risk** is also considered an area where regulatory measures may need to be taken. The past years since the financial crisis have revealed a range of cases where banks’ conduct has fallen far below the standards that authorities and citizens deem acceptable. These indicators of cultural problems in elements of the banking sector have induced authorities and private sector parties to seek ways of improving conduct, and restoring trust where this has been undermined. The ECB supports such work, in particular that within the ESRB and the Financial Stability Board (FSB), which will help bring a structured approach to authorities’ efforts to address these issues. An internationally coordinated approach to enforcement action and enforcement strategies that benefit from the lessons of global best practices will be the way to most effectively change undesirable behaviour and to set the right framework of incentives to promote sound cultures within banks.

In terms of specific measures, the ECB would highlight the important recommendations within the ESRB report – which represent a sound basis to build upon. The Supervisory Review and Evaluation Process (“Pillar II”) provided for under the Single Supervisory Mechanism (SSM) will include an analysis of banks’ corporate

governance and risk appetite – and this will influence microprudential choices on the use of supervisory tools to address misconduct risk. For instance, this could include measures to enhance risk management arrangements, enhance corporate governance structures, or to impose additional capital requirements. Going forward, further consideration will be given to the appropriate treatment of misconduct risk in stress tests. Work will soon begin in both the ESRB and the EBA to develop a methodology for banks to calculate the potential impact of misconduct risks within such stress-test exercises. The ECB supports these initiatives and will contribute to taking them forward wherever relevant.

Table 3.5

Selected new legislation and proposals for legislative provisions on the banking sector in the EU

Initiative	Description	Current status
Bank Recovery and Resolution Directive (BRRD)	The BRRD sets out a framework for the resolution of credit institutions and investment firms, with harmonised tools and powers relating to prevention, early intervention and resolution for all EU Member States.	The BRRD entered into force on 2 July 2014. Several Member States have now transposed the BRRD into national legislation and are applying the framework. However, the bail-in provisions will only be applicable as of 1 January 2016, at the latest.
Deposit Guarantee Scheme Directive (DGS Directive)	The DGS Directive deals mainly with the harmonisation and simplification of rules and criteria applicable to deposit guarantees, a faster pay-out, and an improved financing of schemes for all EU Member States.	The DGS Directive entered into force on 2 July 2014. Member States will have to transpose most provisions into national legislation by 3 July 2015, and in full by 31 May 2016.
Single Resolution Mechanism Regulation (SRM Regulation)	The SRM Regulation establishes a single system, with a single resolution board and single bank resolution fund, for an efficient and harmonised resolution of banks within the SSM. The SRM is governed by two main legal texts: the SRM Regulation, which covers the main aspects of the mechanism, and an Intergovernmental Agreement (IGA) relating to some specific aspects of the Single Resolution Fund (SRF).	The SRM Regulation entered into force on 19 August 2014 and became applicable 1 January 2015. The Single Resolution Board has been set up and is operational, however most resolution functions (including the SRF) will apply as from 1 January 2016. The IGA on the SRF was signed by all Member States (except the United Kingdom and Sweden) on 21 May 2014, and has now been ratified by several national parliaments.
Regulation on structural measures	The proposed Regulation would introduce restrictions on certain activities and sets out rules on structural separation, with the aim of improving the resilience of EU credit institutions.	The European Commission's proposal was published on 29 January 2014. Discussions are on-going in the European Parliament and the Council of the EU. The ECB's legal opinion on the proposal was published on 19 November 2014.

As of 1 January 2015, the **Bank Recovery and Resolution Directive** (BRRD) will have to be implemented by all Member States. The BRRD establishes common and efficient tools and powers for managing failures of credit institutions and investment firms in an orderly manner throughout the EU. In particular, the BRRD introduces the bail-in tool⁸⁸ that will be of paramount importance for the aim to shift the cost of bank failures from the taxpayer to, first and foremost, the shareholders and creditors of the failing bank.

One key reform on the regulatory agenda is addressing the too-big-to-fail problem of global systemically important banks (G-SIBs). The FSB has developed a proposal on the total loss-absorbing capacity (TLAC) for G-SIBs in resolution. An international agreement on a TLAC requirement should help to increase the resolvability of G-SIBs without recourse to public funds, formally by setting minimum standards on the amounts and characteristics of capital and eligible debt that G-SIBs must issue. This would ensure that there is sufficient loss-absorbing capacity within G-SIBs when they fail, thereby underpinning the efficient application of the bail-in tool. Designed as a minimum Pillar I requirement, with a possibility for case-by-case (Pillar II) top-up,

⁸⁸ However, Member States only need to apply the bail-in tool as of 1 January 2016 at the latest.

TLAC introduces a robust standard that ensures a global level playing field for these large and internationally active banks.

The TLAC proposal has been subject to public consultation and is currently undergoing a comprehensive impact assessment, before being finalised in time for the November meeting of the G20. The outcome of the impact assessment should inform the final international standard on TLAC. Finalisation of the design and calibration of the TLAC proposal will be crucial with respect to significantly reducing the regulatory uncertainty regarding bail-in requirements for G-SIBs and tackling the issue of too big to fail.

In the EU, a requirement for own funds and eligible liabilities (MREL) has been set out in the BRRD.⁸⁹ While TLAC will only apply to G-SIBs, MREL is applicable to all banks. Although some features of MREL and TLAC differ, the introduction of TLAC would, in the ECB's view, not be inconsistent with the provisions of the BRRD. The BRRD allows the introduction of a harmonised minimum requirement that takes account of, inter alia, international standards. It will thus be possible to address differences between TLAC and MREL via the BRRD review clause in 2016, and thereby to ensure consistency and to contribute further towards reducing much of the regulatory uncertainty regarding bail-in requirements and minimum requirements for loss-absorbing capacity in banks.

Significant progress has been made in the setting-up of a banking union in Europe. The first pillar of the banking union, the **Single Supervisory Mechanism** (SSM) became operational on 4 November 2014, while the second pillar of the banking union, the **Single Resolution Mechanism** (SRM) became operational on 1 January 2015. The Single Resolution Board has been established, and has started to work on the elaboration of resolution plans and related tasks. It must be noted, however, that most of the provisions in the SRM Regulation only apply as from 1 January 2016 and later. Cooperation between the ECB and the SRB has already started on a number of issues, and the Vice-Chair of the Supervisory Board has also been designated by the ECB to be its permanent observer at the meetings of the SRB.

Finally, the European Commission presented its proposal for a Regulation on **structural measures** for EU credit institutions on 29 January 2014. The ECB's Opinion on that proposal was published on 19 November 2014. The ECB considers the possibility of separating a bank's business activities in two separate entities as beneficial, i.e. as an instrument into be part of the supervisor's toolkit that can facilitate both effective supervision and resolution. Moreover, the ECB welcomes the flexibility of the provisions in the draft proposal, which leaves the decision to separate an institution to the competent authority. To the extent that such separation is effective, i.e. that the entities are no longer too big to fail, the proposal will reduce systemic risk. Moreover, the separation also offers the possibility to impose specific macroprudential requirements on the separated entities, which may further facilitate a reduction of systemic risk.

⁸⁹ Under the BRRD, Member States are required to ensure that institutions meet an MREL for bail-ins. The main differences between the TLAC proposal and MREL were described in the November 2014 FSR.

The aim of the current Latvian Presidency is to attain agreement in the Council in the summer of 2015, with dialogue negotiations starting in the second half of 2015.

Regulatory initiatives for financial markets and infrastructures

In addition to initiatives in the area of banking regulation, several steps have also been taken to strengthen the resilience of financial infrastructures.

The **ECB Regulation on oversight requirements for systemically important payment systems** entered into force on 12 August 2014. Four payment systems are subject to this Regulation: TARGET2 (operated by the Eurosystem), EURO1 and STEP2-T (both operated by EBA Clearing), and CORE (FR) (operated by STET). These systemically important payment systems will have to comply with the requirements of the Regulation by August 2015.

Table 3.6

Selected new legislation and legislative proposals for financial markets and infrastructure in the EU

Initiative	Description	Current status
ECB Regulation on oversight requirements for systemically important payment systems	The Regulation aims at ensuring the efficient management of all types of risk that systemically important payment systems (SIPs) face, together with sound governance arrangements, objective and open access, as well as the efficiency and effectiveness of SIPs.	The Regulation entered into force on 12 August 2014.
European Market Infrastructure Regulation (EMIR)	The Regulation aims to bring more safety and transparency to the over-the-counter derivatives market and sets out rules for, inter alia, central counterparties and trade repositories.	The Regulation entered into force on 16 August 2012.
Regulation on improving the safety and efficiency of securities settlement in the EU and on central securities depositories (CSD Regulation)	The Regulation introduces an obligation of dematerialisation for most securities, harmonised settlement periods for most transactions in such securities, settlement discipline measures and common rules for central securities depositories.	The Regulation entered into force on 17 September 2014. Implementation and drafting of technical standards is in progress.
Review of the Markets in Financial Instruments Directive and Regulation (MiFID II/MiFIR)	The legislation will apply to investment firms, market operators and services providing post-trade transparency information in the EU. It is set out in two pieces of legislation: a directly applicable regulation dealing, inter alia, with transparency and access to trading venues, and a directive governing authorisation and the organisation of trading venues and investor protection	The Directive 2014/65/EU on markets in financial instruments (MiFID II) and the Regulation (EU) No 600/2014 on markets in financial instruments (MiFIR) were both published on the Official Journal of the EU on 12 June 2014.
Proposal for a Money Market Fund Regulation (MMF Regulation) i	The proposal addresses the systemic risks posed by this type of investment entity by introducing new rules aimed at strengthening their liquidity profile and stability. It also sets out provisions that seek, inter alia, to enhance their management and transparency, as well as to standardise supervisory reporting obligations.	The European Commission's proposal was published in September 2013. The ECON Committee of the European Parliament adopted its position on 26 February while discussions are still on-going in the Council, the ECB adopted its position on 21 May 2014.
Proposal for a Regulation on reporting and transparency of securities financing transactions	The proposal contains measures aimed at increasing the transparency of securities lending and repurchase agreements through the obligation to report all transactions to a central database. This seeks to facilitate regular supervision and to improve transparency towards investors and on re-hypothecation arrangements.	The European Commission's draft proposal was published in January 2014. The ECB expressed its support, in principle, of the proposal in its legal opinion of 24 June 2014. The Council of the EU adopted its general approach on 14 November 2014, and the ECON Committee of the European Parliament adopted its report on 24 March 2015.

In the aftermath of the financial crisis, the Leaders of the G20 issued a declaration at the 2009 Pittsburgh meeting that called for improvements to over-the-counter (OTC) derivatives markets. One of the EU's main legislative initiatives to implement the G20 mandate is the **European Market Infrastructure Regulation (EMIR)**, the implementation of which has continued to make progress. The Regulation seeks to bring more stability, transparency and efficiency to derivatives markets by requiring, inter alia, that standard derivative contracts be cleared through central counterparties (CCPs), and that all European derivative transactions be reported to trade

repositories. It fosters regulatory certainty and market confidence by subjecting all European CCPs and trade repositories to the same stringent rules and rigorous supervisory regime. The European Securities and Markets Authority (ESMA) is in the process of consulting on various proposals for implementing the central clearing requirement to OTC derivatives. The first products to be subject to this requirement – which should enter into force gradually as from mid-2015 – will be certain classes of interest rate derivatives.

The **Regulation on improving securities settlement in the EU and on central securities depositories** (the CSD Regulation) entered into force on 17 September 2014. The aim of the Regulation is to increase the safety and efficiency of securities settlement and settlement infrastructures (i.e. central securities depositories) in the EU. It harmonised settlement periods for most transactions in such securities as from 1 January 2015 (T+2) and introduced, inter alia, settlement discipline measures and common rules for CSDs. ESMA and the EBA are currently in the process of drafting, in close cooperation with the members of the European System of Central banks (ESCB), technical standards that have to be submitted to the Commission before end-June 2015.

In the field of **shadow banking**, the FSB has continued with its work on the deliverables laid out in the roadmap on “Transforming Shadow Banking into Resilient Market-based Financing”, published on 14 November 2014.⁹⁰ Milestones attained in the last six months include:

- (i) the publication in November 2014 of the consultation document on standards and processes for global securities financing data collection and aggregation that are relevant for financial stability monitoring and policy responses; and
- (ii) the publication in January 2015 of the consultation document on the assessment methodologies for identifying non-bank non-insurer global systemically important financial institutions (NBNI G-SIFIs), extending the SIFI framework that currently covers banks and insurers to other financial institutions.

Looking forward, the FSB has identified the need for further work on financial stability risks emerging from market-based intermediation through asset management entities as a priority task in 2015. The ECB actively supports this work, given the growing importance of this part of the financial system and the need to extend the regulatory toolkit to mitigate risks to stability in other parts of the financial system.

Regulatory initiatives for the insurance sector

The implementation of the **Solvency II Directive** is still the key stream of work for regulators. The Solvency II regime introduces, for the first time, a harmonised and risk-sensitive prudential framework for insurance firms in the European Economic

⁹⁰ See the FSB press release of 14 November 2014 (available at: <http://www.financialstabilityboard.org/2014/11/progress-report-on-transforming-shadow-banking-into-resilient-market-based-financing/>).

Area. In order to ensure its uniform application, Implementing Technical Standards (ITSs) and Guidelines on Solvency II are being developed by EIOPA, which should be finalised and published by July 2015, before Solvency II will become applicable as of 1 January 2016. The final implementation of Solvency II, as well as of the related ITSs and Guidelines, will help to reduce regulatory uncertainty for insurance corporations and will contribute to a more robust and resilient insurance sector. To complement and develop the Solvency II framework further, additional work is ongoing on recovery plan, finance scheme and supervisory powers in deteriorating financial conditions, as well as on the calibration of infrastructure investments in Solvency II.⁹¹

At the international level, the International Association of Insurance Supervisors (IAIS) has continued its work on the improvement of the assessment methodology for **global systemically important insurers** (G-SIIs). It is envisaged that a revised G-SII assessment methodology will be applied as from 2016. The IAIS is also working on the development of a risk-based group-wide global insurance capital standard (ICS) to serve as the foundations for higher loss absorbency requirements that are to be applied to G-SIIs as from January 2019.

Table 3.7
Selected legislative proposals for the insurance sector in the EU

Initiative	Description	Current status
Solvency II Directive/Omnibus II Directive	The Solvency II Directive is the framework directive that aims to harmonise the different regulatory regimes for insurance corporations in the European Economic Area. Solvency II includes capital requirements, supervision principles and disclosure requirements. The Omnibus II Directive aligns the Solvency II Directive with the legislative methods introduced by the Lisbon Treaty, incorporates new supervisory measures given to the European Insurance and Occupational Pensions Authority (EIOPA) and makes technical modifications.	The Solvency II Directive was adopted by the EU Council and the European Parliament in November 2009. It is now scheduled to come into effect on 1 January 2016. The Delegated Act on Solvency II has been published in the Official Journal of the EU on 17 January 2015. A first set of Implementing Technical Standards (ITSs) and Guidelines on approval processes was published in February 2015. The second set of ITSs on Pillar 1 (quantitative basis), Pillar 2 (qualitative requirements), Pillar 3 (enhanced reporting and disclosure) and supervisory transparency as well as Guidelines relevant for Pillar 2 and Pillar 3 will be published in July 2015.

Other initiatives

The European Commission has identified a **capital markets union** (CMU) as one of its main policy initiatives for its five-year term of office. On 18 February 2015, it published a Green Paper on CMU, with a three-month consultation period. First results of the consultation will be presented by the European Commission at its conference on CMU in June 2015, where it will also set out the prioritisation of policy measures to be included in an Action Plan on CMU that is to be published in September 2015. The main building blocks of CMU are intended to be in place by 2019.

⁹¹ On request of the EU Commission, EIOPA provided its Technical Advice on the first matter at the end of March 2015 (available at: https://eiopa.europa.eu/Publications/Reports/EIOPA-BoS-15-052_Final-Report_Advice_Recovery_for_Publication_27032015.pdf).

CMU has the potential to complement the banking union, strengthen Economic and Monetary Union and foster financial stability. If properly implemented, CMU can be expected to mark a significant leap forwards toward deeper financial integration. Hence, it would support a smooth transmission of monetary policy throughout the euro area. In addition, the CMU agenda can contribute to enhanced financial stability by creating deeper cross-border markets with increased risk-sharing across the EU (thereby enhancing capital markets' ability to cushion shocks) and increasing the resilience of the financial system through the creation of alternative sources of funding for the economy (thereby reducing the economy's dependence on bank funding in periods of bank deleveraging).

While deeper cross-border markets with increased risk-sharing across the EU can contribute to enhanced financial stability, increased financial integration can also have a negative impact on it. Deeper integration can exacerbate the size and speed of contagion. Moreover, increased market-based financing that is triggered by the development of CMU may lead to the building-up of systemic risks in this part of the economy, which is typically less regulated and information on which is still lacking. Therefore, the development of capital markets could imply new sources of idiosyncratic and systemic risks. As the CMU agenda is being pursued, attention should therefore be devoted to safeguarding financial stability by providing authorities with the tools necessary to deal with the build-up of risks in market-based activities outside the regulated banking sector.