

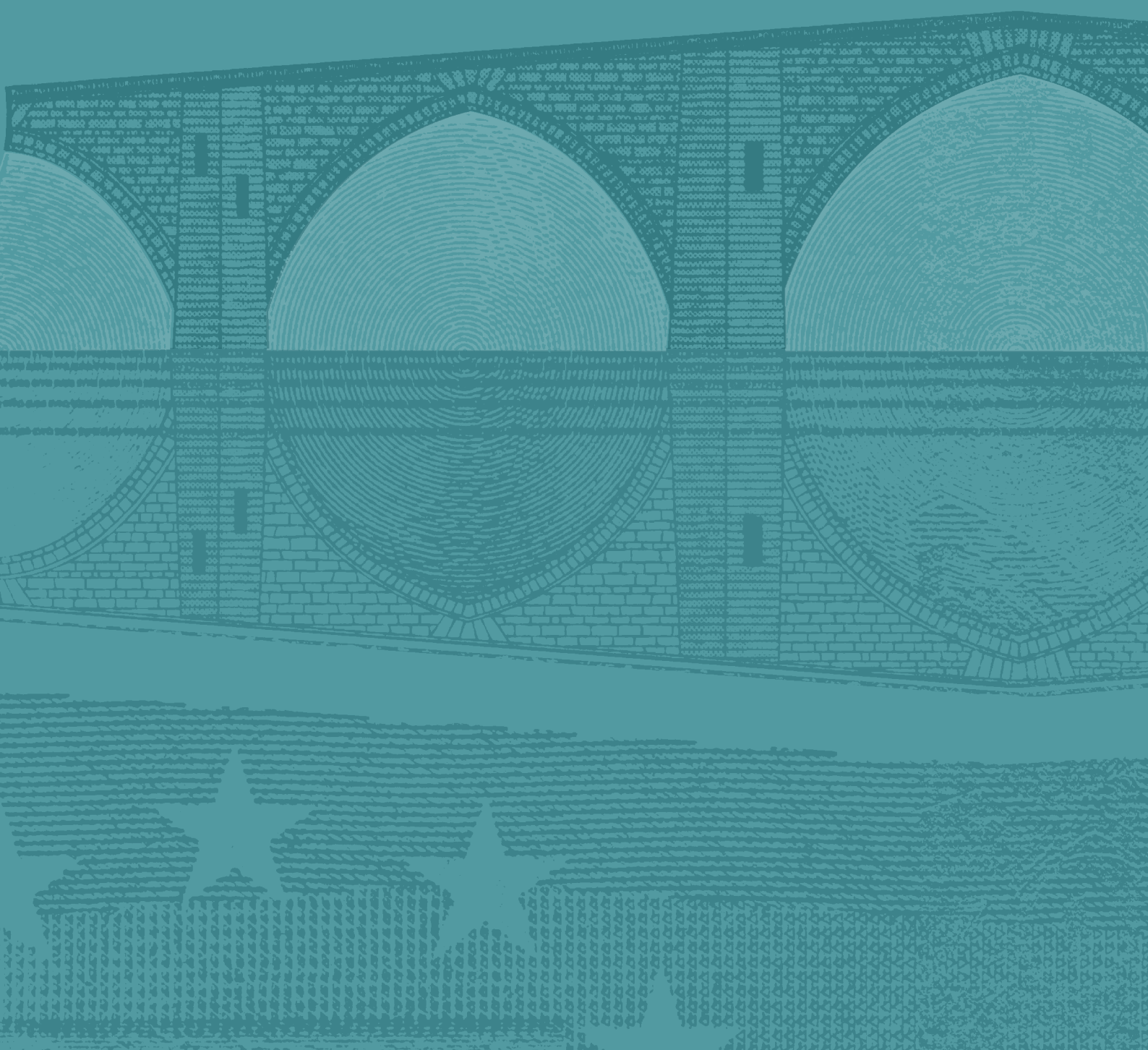


EUROPEAN CENTRAL BANK

EUROSYSTEM

FINANCIAL STABILITY REVIEW

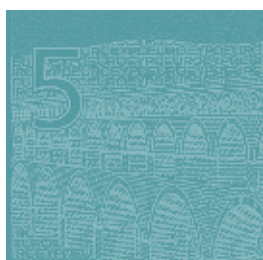
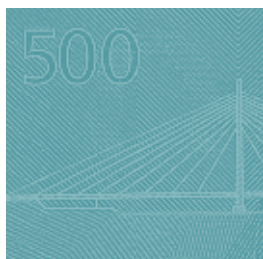
MAY 2014





EUROPEAN CENTRAL BANK

EUROSYSTEM



In 2014 all ECB publications feature a motif taken from the €20 banknote.



FINANCIAL STABILITY REVIEW MAY 2014

© European Central Bank, 2014

Address

Kaiserstrasse 29
60311 Frankfurt am Main
Germany

Postal address

Postfach 16 03 19
60066 Frankfurt am Main
Germany

Telephone

+49 69 1344 0

Website

<http://www.ecb.europa.eu>

All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

Unless otherwise stated, this document uses data available as at 16 May 2014.

ISSN 1830-2025 (online)

EU catalogue number QB-XU-14-001-EN-N (online)



CONTENTS

FOREWORD	5
OVERVIEW	7
I MACRO-FINANCIAL AND CREDIT ENVIRONMENT	15
1.1 Ongoing economic recovery, but downside risks remain	15
Box 1 Financial stability challenges posed by very low rates of consumer price inflation	18
Box 2 Global corporate bond issuance and quantitative easing	20
Box 3 Financial stability implications of the crisis in Ukraine	25
1.2 A further marked fall in sovereign stress amid continued adjustment of underlying vulnerabilities	29
1.3 Improved earnings outlook to support ongoing balance sheet adjustment in the non-financial private sector	33
2 FINANCIAL MARKETS	43
2.1 Risk premia and fragmentation in euro area money markets decline as the investor base expands	43
2.2 Further compression of risk premia as search for yield persists within advanced markets	46
Box 4 Co-movements in euro area bond market indices	50
Box 5 Distinguishing risk aversion from uncertainty	55
3 EURO AREA FINANCIAL INSTITUTIONS	61
3.1 Balance sheet repair continues in the euro area banking sector	61
Box 6 Provisioning and expected loss at European banks	64
Box 7 Recent balance sheet strengthening by euro area banks	68
Box 8 To what extent has banks' reduction in assets been a de-risking of balance sheets?	70
Box 9 Developments in markets for contingent capital instruments	80
3.2 The euro area insurance sector: still robust but faced with multiple challenges	84
3.3 A quantitative assessment of the impact of selected macro-financial shocks on financial institutions	90
3.4 Reshaping the regulatory and supervisory framework for financial institutions, markets and infrastructures	100
Box 10 Forthcoming implementation of the bail-in tool	105
Box 11 Revival of "qualifying" securitisation, main hurdles and regulatory framework	110
SPECIAL FEATURES	113
A Recent experience of European countries with macro-prudential policy	113
B Identifying excessive credit growth and leverage	127
C Micro- versus macro-prudential supervision: potential differences, tensions and complementarities	135
D Risks from euro area banks' emerging market exposures	141
STATISTICAL ANNEX	S I



FOREWORD

This 20th edition marks a decade over which the ECB has been publishing its *Financial Stability Review* (FSR). Over this period, the Review has consistently strived to bring timely analysis to the public, identifying and prioritising main risks and vulnerabilities for the euro area financial sector. It has done so to promote awareness of these risks among policy-makers, the financial industry and the public at large, with the ultimate goal of promoting financial stability. Capturing the complex notion of financial stability is not straightforward; the ECB defines it as a *condition* in which the financial system – intermediaries, markets and market infrastructures – can withstand shocks without major disruption in financial intermediation and in the effective allocation of savings to productive investment.

The global financial crisis has brought with it many challenges to euro area financial stability. It has also brought significant policy progress – at the national level, at the European level and at the international level. An area of active current progress in the euro area concerns the establishment of a banking union. As part of this, fast and substantive progress continues towards the establishment of a Single Supervisory Mechanism (SSM), which will become operational in November this year. Preparations are proceeding well, including the ongoing comprehensive assessment of significant banks the ECB is carrying out before taking over supervisory responsibility. In keeping with past practice, this Review continues to rely on publicly available (and not supervisory) information. It has, however, been broadened to cover a similar set of banks at the consolidated level that are foreseen to fall under the direct supervision of the ECB.

This Review includes several special features tackling both topical issues as well as those underlying preparatory work at the ECB for the new macro-prudential function it will inherit in November this year. This includes, first, taking stock of and reviewing experiences in Europe with macro-prudential policy tools. Next, the issue of adapting monitoring for macro-prudential purposes is tackled, in the context of a new early warning system designed to support macro-prudential policy decisions. A third special feature covers the differences and complementarities between micro- and macro-prudential supervision. A final special feature covers a topical issue regarding vulnerabilities in emerging market economies, and euro area banks' related exposures.

The Review has been prepared with the involvement of the ESCB's Financial Stability Committee. This committee assists the decision-making bodies of the ECB, and in the future the Supervisory Board of the SSM, in the fulfilment of their tasks.

Vítor Constâncio
Vice-President of the European Central Bank



OVERVIEW

Financial stress indicators have remained low and stable after a marked fall that began almost two years ago. In particular, measures of banking system stress have eased further as banking union preparations have gathered pace, with continued associated efforts to strengthen the euro area banking sector. There has also been little sign of stress across the broader financial system (see Chart 1). In this vein, the financial stability risks confronting the euro area can be grouped into two broad categories. First, “legacy” issues from the global financial crisis have receded somewhat but still remain latent. For the euro area, these mainly relate to unfinished progress in the banking and sovereign domains. A second broad set of risks are those that can be considered as “emerging” – mainly stemming from a continued global search for yield which has left the financial system more vulnerable to an abrupt reversal of risk premia.

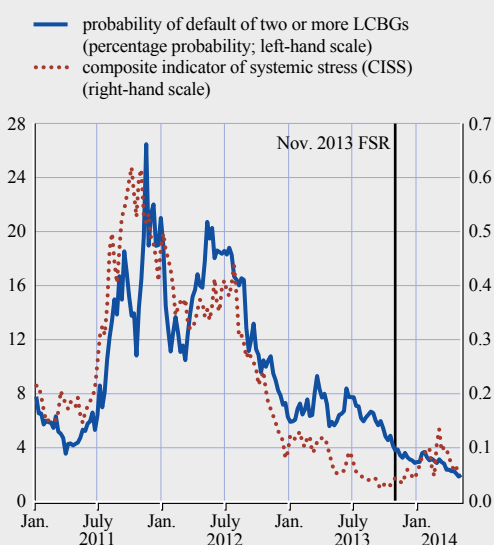
Euro area stress has remained moderate...

Action to address legacy risks from the crisis continues for both banks and sovereigns. For the euro area *banking sector*, one key measure of progress in cleaning up and strengthening balance sheets involves the amount of new capital – since the onset of the global financial crisis euro area banks have issued some €267 billion of quoted shares (see Chart 2), in addition to other forms of capital strengthening (e.g. retained earnings, contingent convertible bond issuance, state aid, etc.). More recently, since the third quarter of 2013, when discussions about the ECB’s comprehensive assessment intensified, significant banking groups in the euro area have bolstered their balance sheets by over €95 billion through equity issuance, one-off provisions, contingent convertible (CoCo) bond issuance and capital gains from asset disposals. At the same time, progress by euro area *sovereigns* in implementing fiscal consolidation and structural reforms has also been significant, although the pace has been uneven across countries. The improved sentiment towards sovereigns

... amid progress in addressing banking and sovereign vulnerabilities

Chart 1 Measures of financial market and banking sector stress in the euro area

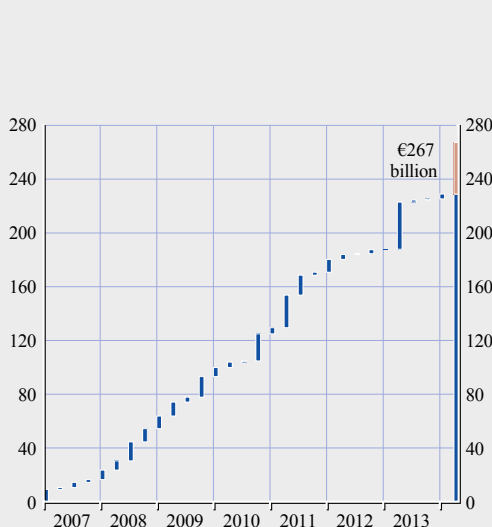
(Jan. 2011 – 16 May 2014)



Sources: Bloomberg and ECB calculations.
Note: See Charts 2.1 and 3.15 for more detail on these indicators.

Chart 2 Quoted shares issued by euro area MFIs

(Q1 2007 – Q2 2014; EUR billions)



Sources: ECB, banks’ financial reports, market research and ECB calculations.
Note: Q2 2014 data include announced but not yet completed deals.

resulted in significantly declining yields on lower-rated euro area sovereign bonds, which in some cases reached levels last seen before the eruption of the euro area-centred second wave of the global financial crisis in 2010.

The challenge ahead is to ensure that efforts are sustained to finalise and implement necessary reforms and to ensure that the crisis conditions do not re-emerge. For euro area banks, continued action is needed to mitigate investor scepticism about the sector, while at the same time ensuring that the bank deleveraging process is not unduly reducing the supply of credit to the economy. Similarly, continued action by sovereigns is needed to address public debt sustainability challenges – notably progress in restoring the soundness of public finances while working to boost macroeconomic growth prospects.







*Signs of hunt
for yield causing
imbalances*

As legacy risks have receded, a growing search for yield has progressively become more pervasive across regions and market segments. This has in many ways benefited both euro area banks and sovereigns, given the resulting lower borrowing costs and improved access to equity and bond markets. But as the breadth of the search for yield widens at the global level, risks of a possible reassessment of risk premia with implications for global financial markets are increasing. Some of the capital inflows to euro area sovereigns and banks appear to have been based on relative return considerations (e.g. dependent on continued emerging market concerns and perceptions of inexpensive euro area assets). Such flows might prove to be fickle absent prospects of strong absolute returns differentiated by underlying country and bank-specific macroeconomic prospects.

*Three key risks to
euro area financial
stability*

These legacy and emerging issues group into three key risks to euro area financial stability that should predominate over the next year and a half (see Table 1). The three risks – described in more detail below – are conceptually distinct in many ways but not independent – rather, if triggered they have the potential to be mutually reinforcing. These key risks also encompass bank funding challenges underlying past stress, notably from broader concerns about the possibility of a reassessment of risk premia.

Table 1 Key risks to euro area financial stability

		Current level (colour) and recent change (arrow)*
1. Abrupt reversal of the global search for yield, amid pockets of illiquidity and likely asset price misalignments		
2. Continuing weak bank profitability and balance sheet stress in a low inflation and low growth environment		
3. Re-emergence of sovereign debt sustainability concerns, stemming from insufficient common backstops, stalling policy reforms, and a prolonged period of low nominal growth		
pronounced systemic risk		*The colour indicates the current level of the risk which is a combination of the probability of materialisation and an estimate of the likely systemic impact of the identified risk over the next year and a half, based on the judgement of the ECB's staff. The arrows indicate whether this risk has intensified since the previous FSR.
medium-level systemic risk		
potential systemic risk		

Key risk 1: Abrupt reversal of the global search for yield, amid pockets of illiquidity and likely asset price misalignments

Financial markets have seen a further compression of risk premia, increasingly pervasive across asset classes and major geographical regions. This reflects increased investor confidence owing to improved fundamentals, an intensification in search-for-yield behaviour, and some rebalancing of portfolios from emerging to advanced economies. In Europe, the preference for riskier assets has been evident in the compression of credit spreads in sovereign and corporate bond markets, but also in valuations of other assets such as equities and the prime segment of commercial property (i.e. modern office and retail space in capital cities).

The reduction in risk premia has been pronounced in the euro area, owing to some normalisation after previous outflows, in combination with higher foreign demand. This has resulted in a decline in fragmentation across national borders – with a large decline in yields on lower-rated euro area government bonds since the beginning of 2014 (see Chart 3). Growth in the non-domestic investor base contributed to this development, some of which stems from a redirection of flows owing to geopolitical and emerging market tensions. At the same time, yields on higher-rated benchmark global government bonds remain at historical lows.

Risk premia have also continued to decline in global corporate credit markets, especially in the euro area, with high-yield corporate spreads narrowing to levels last observed in October 2007. Much of the investor demand has been in the high-yield segment (see Chart 4), which supported high-yield issuance and issuance of subordinated debt and CoCos by euro area banks. As spreads on high-yield bonds have compressed to pre-crisis levels, growth in products offering a higher yield but lower protection for lenders (such as “covenant-lite” loans) has strengthened, in particular within US markets.

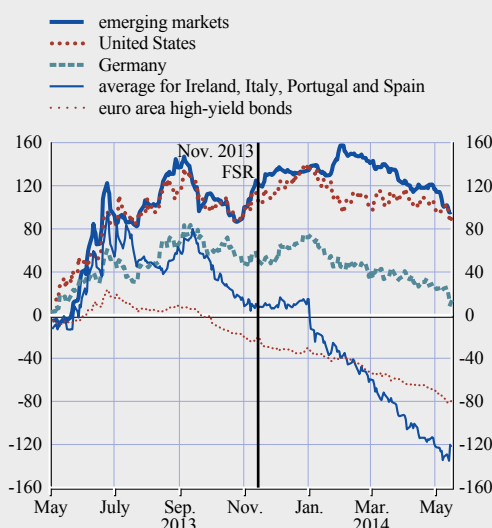
A further broad-based compression of risk premia...

... in sovereign debt...

... and corporate bond markets

Chart 3 Cumulative changes in bond yields since May 2013

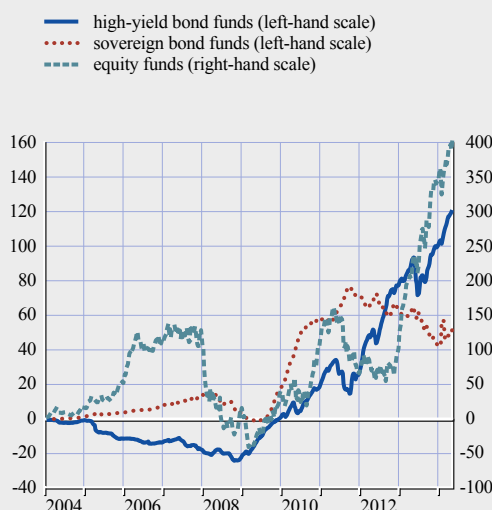
(2 May 2013 – 16 May 2014; cumulative change in basis points; ten-year sovereign bond yields)



Source: Bloomberg.

Chart 4 Global investor flows into selected funds

(Jan. 2004 – May 2014; USD billions)



Source: EPFR.

The sustainability of the lower risk premia environment could be tested

The sustainability of recent strong demand for euro area assets rests on the persistence of three key drivers. First, investor confidence to date has been supported by further progress on European safety nets, ratings upgrades, improving fiscal prospects and lower political uncertainty. However, continued confidence depends on the sustainability of the ongoing economic recovery where risks remain on the downside.

Second, the durability of investor flows towards lower-rated euro area bonds, equities and other asset classes such as commercial property depends on continued strong risk appetite. Foreign investment in lower-rated euro area bond markets has been symptomatic of a search for yield, with investors first pushing for shorter durations up to the point where risk-adjusted returns become negligible, at which point they either extend duration or move further down the credit quality spectrum. Similarly, commercial property price dynamics suggest a growing bifurcation between strong price increases in the prime segment and relatively moribund developments in the non-prime segment. Transaction volumes in commercial property markets have reached their highest levels since 2008, underpinned by a surge in cross-border investments – in particular from non-European investors – which has accounted for almost half of the increase. Global investor sentiment is currently sensitive to, for example, developments in emerging markets, including geopolitical risks related to Ukraine and Russia, which could lead to increases in risk aversion. Moreover, the potential for downside risks to Chinese growth has increased and any unearthing of Chinese vulnerabilities would likely have important ramifications for global risk aversion. In addition, while prevailing monetary policy settings in major economies such as the euro area, the United Kingdom and Japan provide a strong anchor for expectations regarding short-term interest rates, yields on longer-dated bonds remain vulnerable to an increase in US term premia.

Third, some of the bond and equity market improvement in the euro area relates to the rebalancing of portfolios away from emerging markets, amid worsening economic and financial conditions in these economies. Inflows to euro area bond and equity markets since mid-2013 have tended to coincide with a prolonged period of capital outflows from emerging markets, in particular those with poorer underlying fundamentals.

As the search for yield has intensified, so have concerns regarding the build-up of imbalances and the possibility of a sharp and disorderly unwinding of recent investment flows. Continued low yields may place additional pressure on investors to improve returns, which could push investors into leveraged positions and/or lower-quality assets with low liquidity. In addition, low secondary market liquidity in corporate and emerging market bond markets could amplify future asset price developments, especially as losses in the next default cycle could be more substantial than during previous cycles due to the significant growth in the high-yield bond segment with a downward drift in ratings.

Stable and predictable policies are key to prevent an abrupt risk reversal

As the potential for adjustment in financial markets remains, supervisors need to ensure that banks, insurers and pension funds have sufficient buffers and/or hedges to withstand a normalisation of yields.

Key risk 2: Continuing weak bank profitability and balance sheet stress in a low inflation and low growth environment

Banks remain vulnerable to a further deterioration in asset quality...

Euro area banks continue to operate in a low profitability or loss-making environment, compounded by a continued deterioration in asset quality in some banking sectors. Although some tentative signs of a levelling-off in the pace of non-performing loan formation have emerged in some countries,

the turning point does not appear to have been reached yet. Indeed, more than half of euro area significant banking groups reported losses in the second half of 2013 as high loan loss provisioning needs continued to weigh heavily on euro area banks' financial performance, which – once correcting for provisioning – closely resembles that of their global peers (see Chart 5).

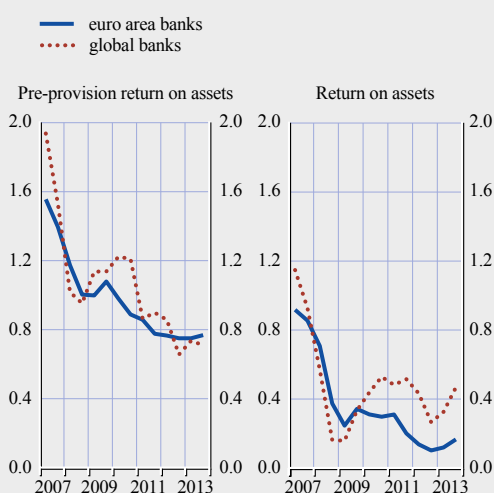
The risk of a further deterioration in credit quality remains significant amid a still relatively weak (albeit improving) and uneven economic outlook, although stepped-up loan loss provisioning and increased capital buffers in large parts of the euro area banking sector may well serve as risk-mitigating factors. Amid continued downside risks to a fragile euro area economic recovery, high private sector indebtedness in many countries, coupled with only slowly improving income and earnings prospects, may weigh on borrowers' debt servicing capabilities if indebtedness is not substantially declining. Likewise, muted nominal growth prospects may create challenges for balance sheet adjustment. At the same time, some euro area banks are confronted with increasing risks from emerging market exposures. All told, the need for loan loss provisioning may therefore still remain high for some time, also in anticipation of the ECB's comprehensive assessment.

Continued asset quality challenges, which are in many ways tied to the economic cycle, contrast with ongoing progress made in cleaning up bank balance sheets and bolstering capital positions. Since the third quarter of 2013, when discussions about the ECB's comprehensive assessment intensified, significant banking groups in the euro area have strengthened their balance sheets significantly (see Chart 6). Some of the actions by banks remain a result of – in some cases already planned – measures to de-risk balance sheets, to improve capital levels amid previously identified insufficiencies and to repay state aid received during the financial crisis. Other measures appear to constitute preparatory action ahead of the comprehensive assessment – thereby reducing any

... although efforts have been significant to bolster shock-absorption capacities...

Chart 5 Pre- and post-provision return on equity of euro area significant banking groups and global banks

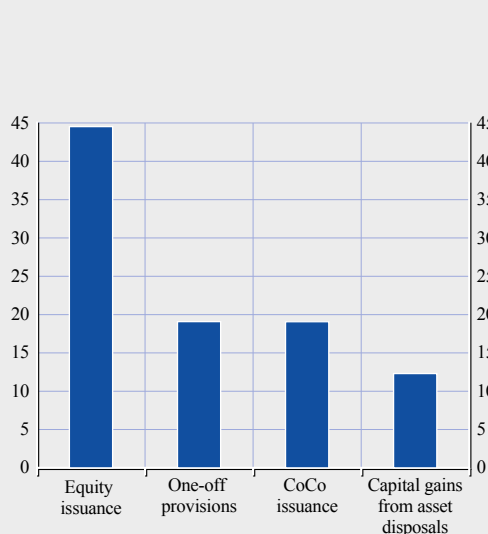
(H1 2007 – H2 2013; percentages; two-period moving average)



Sources: SNL Financial and ECB calculations.

Chart 6 Balance sheet strengthening by euro area significant banking groups since July 2013

(EUR billions)



Sources: SNL Financial, Dealogic, banks' financial reports, market research and ECB calculations.
Note: One-off provisions include provisions related to reclassifications and on extraordinary items identified by banks as being related to the asset quality review.



risk of congestion in bank capital markets after the publication of the comprehensive assessment results, should additional shortfalls be identified.

Euro area banks have continued to actively reduce the size of their balance sheets. Euro area MFIs (euro area-domiciled assets only) have reduced their total assets by €4.3 trillion since May 2012 (see Chart 7). Significant banking groups in the euro area have reduced the size of their *consolidated* balance sheets (that is, including assets outside the euro area) by over €5 trillion – a 20% decline – since their respective peak values (which on aggregate was in the first half of 2012, though differing across banks).

The extent of asset reductions has, however, varied greatly across banks. Moreover, it is difficult to assess to what extent the asset shedding has led to a true de-risking of balance sheets. Indeed, the bulk of the reduction in euro area-domiciled assets has stemmed from a reduction in derivative positions, mainly in non-vulnerable euro area countries, accounting for around half of the decline in assets since the peak in May 2012. Furthermore, balance sheet reductions have also had a negative impact on credit to the real economy in some countries, with a cutback in loans to the non-financial private sector (including asset transfers) in more vulnerable euro area countries accounting for an additional one-third of the overall asset decline since May 2012.

... which has increased confidence in the banking sector

The progress in balance sheet repair, combined with ongoing implementation of the banking union, has contributed to a marked improvement in sentiment towards the euro area banking sector. Euro area large and complex banking groups' price-to-book ratios have risen to their highest levels in more than three years. These ratios nonetheless remain below 1 for a number of banks, which highlights that concerns continue to linger about banks' asset quality and earnings outlook. The comprehensive assessment carried out by the ECB will make a significant contribution in this regard by bringing more transparency to banks' balance sheets. By identifying and implementing necessary action, the comprehensive assessment will also contribute to banks' balance sheet repair and confidence building, which will support the banking sector's ability to extend credit.

Key risk 3: Re-emergence of sovereign debt sustainability concerns, stemming from insufficient common backstops, stalling policy reforms, and a prolonged period of low nominal growth

Sovereign tensions have eased...

Sovereign tensions have eased considerably, and in many ways, quite rapidly. Yields on lower-rated euro area sovereign bonds have declined and in some cases reached levels last seen before the eruption of the euro area-centred wave of the global financial crisis in 2010.

Two main factors have underpinned this recent decline in yields, building on the strong narrowing of euro area sovereign yields following the announcement of Outright Monetary Transactions (OMTs) in 2012. First, continued progress towards weakening the links between sovereigns by

Chart 7 Evolution of total assets of euro area MFIs

(May 2012 – Mar. 2014; EUR trillions)



Source: ECB.

Notes: The red bars signal a decline and the green bars an increase in the given month.

building a banking union has contributed to the improved sentiment towards euro area sovereigns. Second, euro area countries have made further significant adjustment towards more sustainable fiscal positions. Fiscal outcomes in 2013 beat targets in all EU-IMF programme countries at that time (Cyprus, Greece, Ireland and Portugal) while public deficits are expected to fall to 2.5% of GDP in the euro area as a whole in 2014, with notable improvements compared with 2013 expected in several countries (see Chart 8). In some cases, the large projected improvement of fiscal balances in 2014 can mainly be explained by one-off bank recapitalisation costs in 2013 in several countries, notably in Greece and Slovenia (see Chart 8). In this environment, the aggregate euro area public debt-to-GDP ratio is expected to peak in 2014 at 96% of GDP, with primary surpluses contributing to a foreseen reduction in debt in 2015 for the first time in seven years. This comes amid an exit from support programmes in Ireland, Spain and Portugal over the last months.

Despite the continued improvement in sentiment towards euro area sovereigns, public debt sustainability challenges persist given still elevated and, in a number of countries, further increasing public debt levels amid weak nominal growth prospects. In addition, while newly approved bail-in rules might insulate public balance sheets from future national costs of bank recapitalisation, particularly once fully implemented in 2016, still incomplete supranational backstops imply a continued potential for adverse feedback loops between banks and sovereigns.

... but public debt sustainability challenges remain

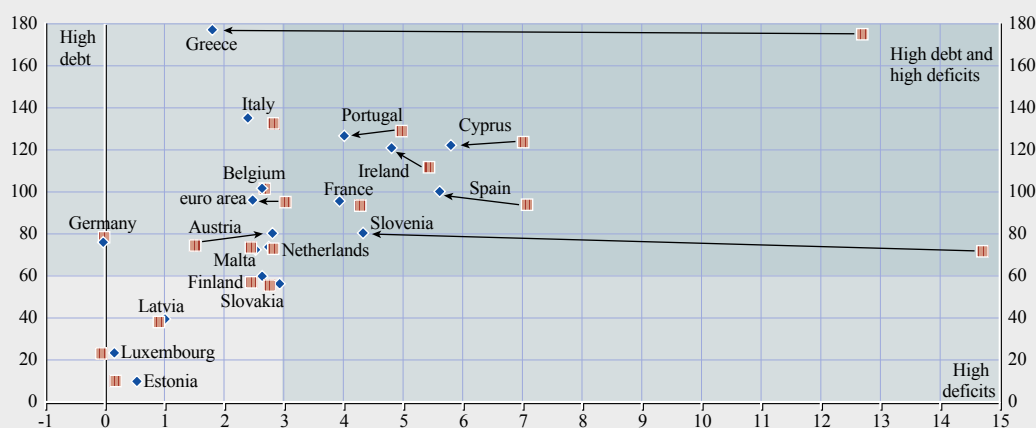
This suggests unfinished adjustment of fiscal and economic fundamentals relevant for debt sustainability. With the recent relative calm in euro area financial markets having the potential to breed complacency in terms of fiscal consolidation and structural reforms, there is a risk that fiscal adjustment could again revert to pro-cyclical tendencies. Reinforced rules at the European level should help to mitigate such risks, as substantial further structural adjustments are needed in most countries to put public debt on a firmly declining path. Any potential for reform fatigue or complacency at the national level could lead to a reassessment of sentiment towards euro area sovereigns.

Chart 8 General government debt and deficits in the euro area

(percentage of GDP)

x-axis: public deficits
y-axis: general government debt

◆ 2014
■ 2013



Source: European Commission.

Note: High debt and high deficits refer to values above the Maastricht criteria.

Clearly, risks to the sovereign outlook are not distinct from the risk of an abrupt reversal of the global search for yield, or further stress in the banking sector should credit quality worsen and banks face further significant losses. A generalised abrupt reversal of the global search for yield could lead to renewed increases in sovereign bond yields, in particular in lower-rated euro area countries. This poses concerns as the gross sovereign financing needs for 2014 as a whole remain significant in many euro area countries. It would also result in losses for banks since holdings of sovereign debt have been on an increasing path in several euro area countries in recent years, although the levels are generally below those seen in other key advanced economies (see Chart 9).

ONGOING REGULATORY INITIATIVES

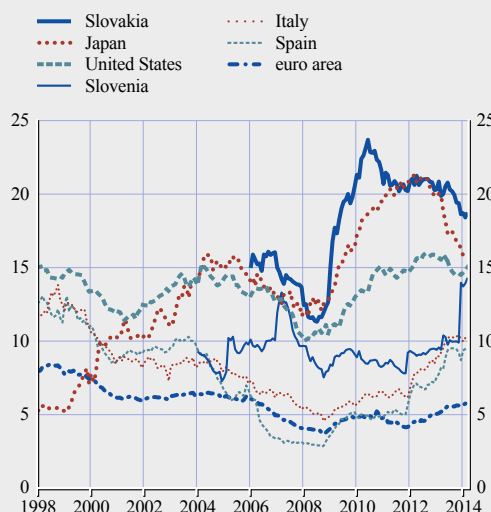
Progress towards a safer post-crisis financial system has continued, with advancements both at the global and European levels in the areas of financial institutions, markets and infrastructures. Further progress has, in particular, been made in weakening the links between sovereigns and banks and in building a more resilient banking sector. The SSM is well on track to start operations in November and, following the completion of a public consultation, the ECB published the SSM Framework Regulation on 25 April 2014.

The European Parliament on 15 April 2014 approved three measures which will bring the EU further down the road towards banking union. First, the Bank Recovery and Resolution Directive (BRRD), which will provide common and efficient tools and powers for addressing a banking crisis pre-emptively and managing failures of credit institutions and investment firms in an orderly way. Second, the establishment of a Single Resolution Mechanism (SRM) aimed at setting up a unique system for resolution, with a Single Resolution Board and a Single Resolution Fund in its centre. Third, progress towards a third pillar of banking union, namely a European system for deposit protection, was also made with the approval of the agreement on the Deposit Guarantee Scheme Directive (DGSD). In addition to these decisions, on 29 January 2014 the European Commission presented its proposal for a Regulation on structural measures for EU credit institutions, which aims at improving the resilience of European banks by preventing contagion to traditional banking activities from banks' trading activities.

Financial stability will benefit from continued progress in completing regulatory reform not only for banks, but also for financial markets and infrastructures. From a euro area perspective, a swift and complete implementation of the building blocks of the banking union is arguably the most pressing need, including by weakening feedback loops between banks and national authorities. Notwithstanding the substantial progress so far, continued momentum is needed to reinforce oversight not only of banks, but also of a growing shadow banking sector and derivatives markets.

Chart 9 Domestic sovereign bond holdings by banks

(Jan. 1998 – Mar. 2014; percentage of total banking sector assets)



Sources: ECB, Federal Reserve and Bank of Japan.

Note: Data for the United States include sovereign bonds and agency mortgage-backed securities.



I MACRO-FINANCIAL AND CREDIT ENVIRONMENT

Macro-financial conditions in the euro area continue to show signs of gradual improvement amid an ongoing cross-regional shift in global growth dynamics. While advanced economies have gained further momentum, bolstered by continued policy support, underlying financial vulnerabilities and resurfacing geopolitical uncertainties still weigh on growth prospects in emerging economies with often limited room for policy manoeuvre. The recent emerging market tensions have remained largely confined, with only a limited global impact to date. There are, however, risks that this shift in regional growth dynamics may yet become more pronounced, in particular if a broad-based adjustment in global capital flows materialises along the path to monetary policy normalisation in key advanced economies.

In this environment, market-based *sovereign stress* indicators for the euro area as a whole have fallen close to pre-crisis levels amid a continued marked turnaround in market sentiment towards more vulnerable euro area economies. At the same time, an adjustment of fiscal fundamentals across the euro area continues, with improving budgetary outcomes in a context of a gradually strengthening economic recovery. Debt sustainability challenges nonetheless remain, given elevated, and in some countries still increasing, levels of public debt, alongside continued (albeit reduced) potential for renewed adverse feedback between bank and sovereign distress.

Balance sheet adjustment also continues in the *non-financial private sector*. While the availability and cost of funding for euro area households and firms show tentative signs of improvement, fragmentation persists in terms of both countries and firm size. The ongoing macroeconomic recovery appears to be slowly translating into improved income and earnings prospects, which, together with the favourable interest rate environment, should help support the process of balance sheet repair in the household and non-financial corporate sectors.

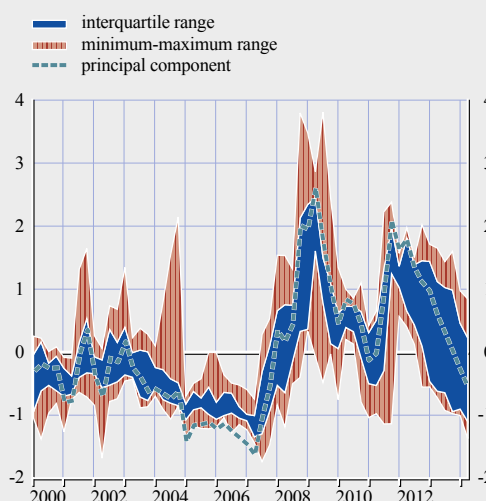
Developments in euro area *property markets* continue to diverge strongly at country and regional levels in terms of prices and valuations in both the residential and commercial segments. In particular, signs of a turning point in prices in those jurisdictions, where macroeconomic rebalancing continues, contrast with strong price growth in other countries. More generally, increased investor appetite is fostering strong growth in the prime segment of commercial real estate, warranting close monitoring.

I.1 ONGOING ECONOMIC RECOVERY, BUT DOWNSIDE RISKS REMAIN

The economic recovery in the *euro area* continued to take hold at the turn of 2013/14, supported by further improving business and consumer confidence, and the ensuing turnaround

Chart I.1 Macroeconomic uncertainty in the euro area

(Q1 2000 – Q2 2014; standard deviations from the mean)



Sources: Consensus Economics, European Commission, ECB, Baker, Bloom and Davis (2013) and ECB staff calculations. Notes: Mean for the period from the first quarter of 1996 to the second quarter of 2014. Macroeconomic uncertainty is captured by examining a number of measures of uncertainty compiled from a set of diverse sources, namely: (i) measures of economic agents' perceived uncertainty about the future economic situation based on surveys; (ii) measures of uncertainty or of risk aversion based on financial market indicators; and (iii) measures of economic policy uncertainty. For further details on the methodology, see "How has macroeconomic uncertainty in the euro area evolved recently?", *Monthly Bulletin*, ECB, October 2013.

Ongoing economic recovery amid diminishing uncertainty...

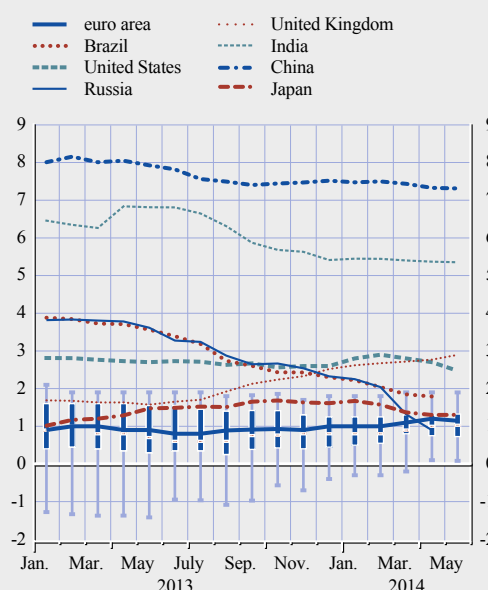
... and reduced
cross-country
heterogeneity

in the domestic demand cycle. The recovery has also been buttressed by considerably reduced macroeconomic uncertainty, which now again appears to be below the long-run average (see Chart 1.1). While the decline common across various indicators has been impressive, various uncertainty measures continue to suggest a high degree of heterogeneity.

Economic conditions in the euro area are expected to improve further in 2014, bolstered by an accommodative monetary policy stance and improving financing conditions, as well as by the progress made in fiscal consolidation and structural reforms. The March 2014 ECB staff macroeconomic projections for the euro area indicate annual real GDP growth of 1.2% in 2014, which is slightly higher than at the time of the last Financial Stability Review, and is forecast to accelerate to 1.5% in 2015, and further to 1.8% in 2016. Nonetheless, over the near-term forecasting horizon, the economic growth outlook for the euro area is still somewhat less favourable than that for other major advanced and emerging market economies (see Chart 1.2). Indeed, uncertainty

Chart 1.2 Evolution of forecasts for real GDP growth in selected advanced and emerging economies for 2014

(Jan. 2013 – May 2014; percentage change per annum)



Source: Consensus Economics.

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

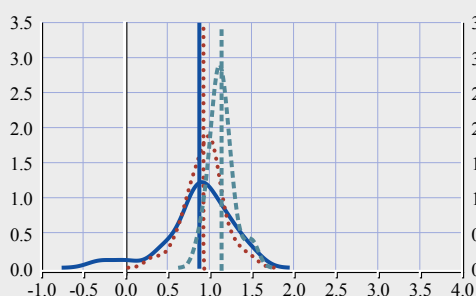
Chart 1.3 Distribution of 2014 real GDP growth forecasts for the euro area and the United States

(probability density)

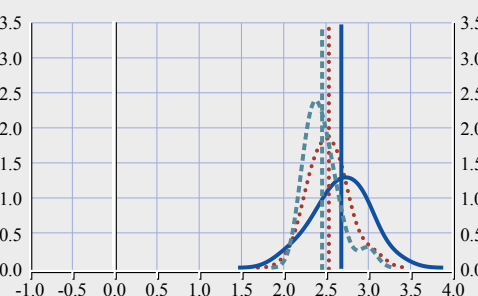
x-axis: real GDP growth rate

— May 2013 forecast for 2014
 November 2013 forecast for 2014
 - - - May 2014 forecast for 2014

a) euro area



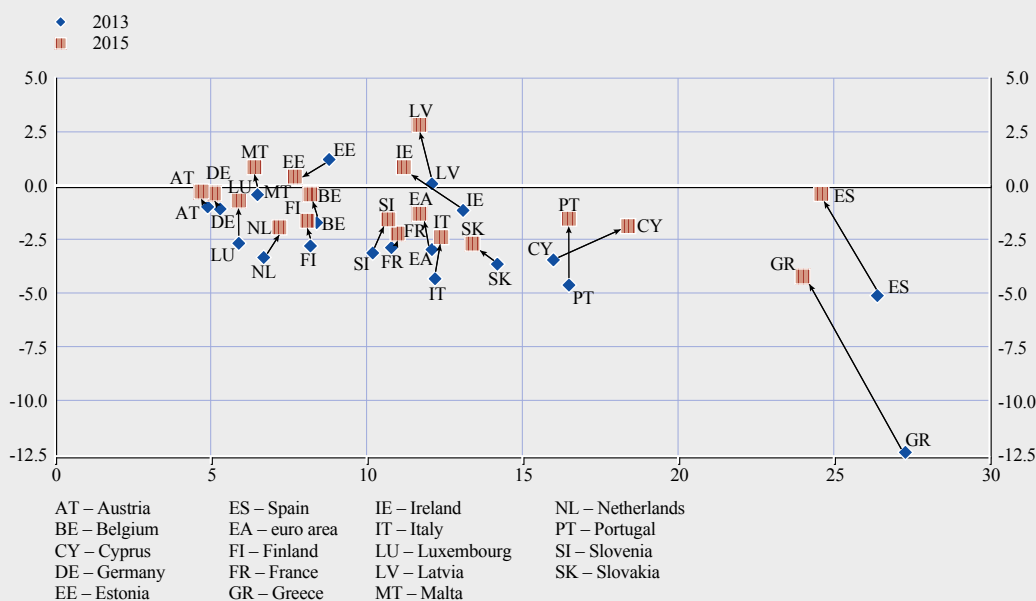
b) United States



Sources: Consensus Economics and ECB calculations.

Chart 1.4 Changes in the output gap and the unemployment rate across the euro area

(percentages; x-axis: unemployment rate; y-axis: output gap)



Sources: European Commission and Eurostat.
Note: 2015 data are projections.

regarding the strength and pace of economic recovery remains, not only in the euro area, but also in other important global growth engines such as the United States (see Chart 1.3). In addition, the improving euro area outlook continues to mask a high degree of cross-country heterogeneity, albeit with a decreasing downside skew in the distribution of growth prospects across individual euro area countries and – for the first time since early 2011 – a positive real GDP growth forecast for all euro area economies.

As reflected by the considerably improving current account balances (even after adjusting for economic cycles), marked progress has been made in restoring competitiveness in recent years, especially in vulnerable euro area countries. The further reduction of real fragmentation across the euro area will require continued nominal adjustment to restore price competitiveness. This includes relative price adjustments across economies in the euro area – with the challenge in some cases of downward nominal rigidity in prices and wages (see Box 1). It will also require real adjustment in non-price competitiveness and, in particular, continued efforts are needed to enhance the euro area's medium-term growth potential. Indeed, negative output gaps are diminishing in most cases, but remain fairly sizeable, particularly in more vulnerable euro area economies such as Greece, Spain, Portugal and Italy (see Chart 1.4). In this context, labour market conditions are continuing to diverge considerably within the euro area, where high unemployment in countries experiencing a prolonged and more pronounced cyclical downturn contrast with still relatively benign labour market conditions in others, such as Austria and Germany. This dispersion also highlights the need for employment and growth-enhancing structural reforms to support an inclusive, broad-based and self-sustaining economic recovery.

Despite the progress made to date, there is a continued need for further rebalancing across the euro area

Box I

FINANCIAL STABILITY CHALLENGES POSED BY VERY LOW RATES OF CONSUMER PRICE INFLATION

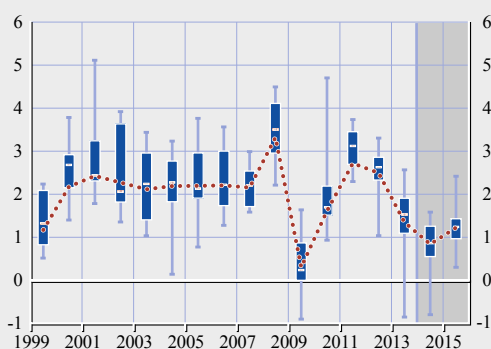
Over recent months, HICP inflation in the euro area has fallen to low levels. The ECB's Governing Council expects inflation to remain low for a prolonged period, followed by a gradual upward movement in HICP inflation rates. However, some analysts have voiced concerns about the potential for deflation. Associated financial stability concerns relate primarily to debt sustainability challenges posed by low (or even negative) inflation outturns at the national level (see Chart A).

Low rates of inflation in the euro area are the result of a confluence of many factors. *Cost-push* factors, both global and local in nature, have contributed to the decline. Global factors have in many ways been dominant, stemming from broader developments outside the euro area. They have affected the euro area and other advanced economies alike, including a deceleration in energy and food prices (see Chart B). For the euro area, this has been amplified by an appreciating euro effective exchange rate. Local factors have also contributed, including the impact of labour and product market reforms. More country-specific *demand-pull* factors have led to differentiated inflation outturns, as countries have been recovering at a different pace from recessions of varying magnitudes. Euro area medium to long-term *inflation expectations* have remained firmly anchored in the midst of these probably transitory cost-push and demand-pull forces.

The impact these low inflation outturns will have on financial stability depends on how they affect debt dynamics – notably how the amplitude and persistence of disinflationary pressures interact with prevailing levels of debt (see Chart C). On the one hand, differentials in inflation

Chart A HICP inflation in the euro area and differentials across countries

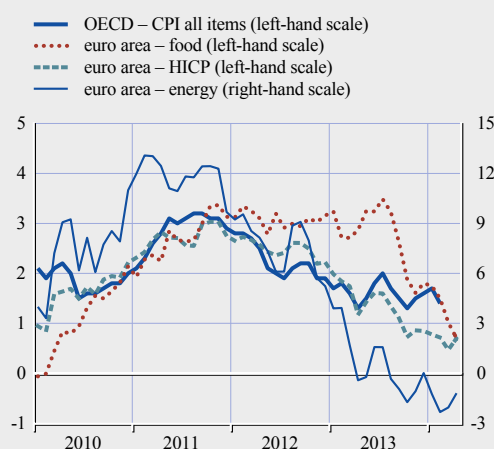
(1999 – 2015; percentage per annum)



Sources: ECB, Eurostat and European Commission.
Notes: The chart shows the minimum, maximum, median and interquartile range across the 18 euro area countries. The shaded area shows projections from the European Commission's spring 2014 economic forecast.

Chart B Price developments in OECD countries and in the euro area

(Jan. 2010 – Apr. 2014; percentage per annum)



Sources: OECD and Eurostat.

rates across euro area countries can be seen as welcome relative price adjustments which are part of a structural process of rebalancing, contributing to the restoration of price competitiveness in economies where it had been eroded in the pre-crisis period. On the other hand, low inflation rates complicate balance sheet repair and may thereby also jeopardise financial stability through adverse effects on debt dynamics. As the vast majority of debt contracts are written in nominal terms, lower inflation contributes to a slower than expected decline in the real debt burden for households, firms and the government. At the limit, generalised falls in the price level would de facto increase the real value of debt contracts and the real debt service burden through the potential for higher real interest rates.

In general, a debt deflation spiral can be amplified by three potentially mutually reinforcing channels:¹

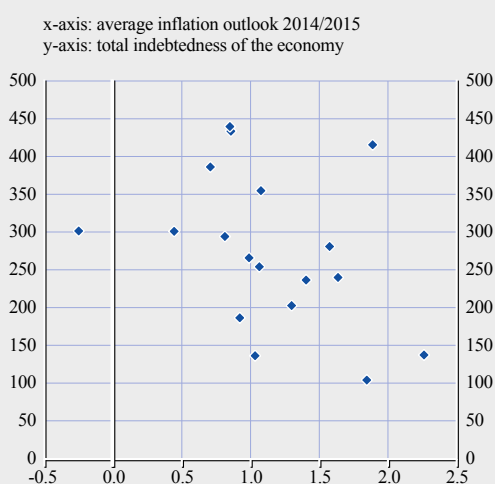
1. *Price level deflation* increases the real debt level and induces households and firms to redeem their debt to at least counter the real debt increase. These effects are greater, the longer the average maturity of the debt stock and the interest rate fixation period. The associated decline in consumption leads to a further fall in the general price level.
2. Downward pressure on *asset prices* may ensue if debtors need to sell some of their assets to service their debt. Broad-based distress selling of assets in turn leads to further asset price declines, causing a reduction in net worth with a detrimental impact on aggregate demand and a falling general price level.
3. The banking system may be affected directly to the extent that higher real debt burdens cause widespread default, which in turn leads to impaired *credit intermediation*. The resulting credit contraction would exert additional downward pressure on asset prices.

An initial level of debt that is sustainable as well as inflation expectations that are well anchored close to the central bank's inflation objective are crucial for financial and, ultimately, economic stability. Where debt levels are sustainable, negative or very low inflation rates would complicate the deleveraging process because less of the real debt burden would be diminished by inflation, leaving less capacity to expand aggregate demand and thus resulting in a slower economic recovery. Only in an extreme situation, where initial debt levels are unsustainably high and inflation expectations are not anchored, would a destabilising debt deflation spiral involving the above channels evolve, placing increasing pressure on consumer and asset prices.

¹ For a taxonomy of these three channels, summarising the literature on debt deflation, see von Peter, G., "Debt deflation: concepts and a stylised model", *Working Papers*, No 176, Bank for International Settlements (BIS), April 2005.

Chart C Total indebtedness of the economy and inflation outlook across the euro area

(Q3 2013; percentage of GDP; percentage per annum)



Sources: European Commission spring 2014 economic forecast, ECB and ECB calculations.
Note: Total indebtedness of the economy comprises the debt level of households, non-financial corporations and the general government.

The potential for debt deflation to materialise in the euro area is very remote as it would require an economy-wide and protracted decline in prices and inflation expectations. Despite low readings of headline inflation across the euro area and modest wage declines in the presence of continued high debt levels in some euro area countries, medium-term inflation expectations remain firmly anchored and HICP inflation rates are expected to move gradually upwards. Moreover, ECB monetary policy remains firmly geared towards price stability in the euro area. Ultimately, debt sustainability depends not only on inflation, but on a broader set of factors such as the level of indebtedness and economic growth. This clearly underscores the role that structural reforms and continued balance sheet repair have to play in supporting the resilience of the financial sector.

Similarly to economic developments in the euro area, the **global economy** has been gradually gaining traction, albeit against the backdrop of an ongoing underlying shift in regional growth dynamics. Economic recovery in advanced economies continues to strengthen amid continued strong monetary policy support. By contrast, economic dynamics in emerging economies have lost further steam, owing to credit overhangs, structural problems and tighter financial conditions, in particular in countries exhibiting more pronounced external and domestic imbalances. This development appears to have been reinforced by changes in financial market sentiment towards emerging economies as a corollary of the US Federal Reserve System's ongoing tapering of its quantitative easing programme (see Box 2).

Box 2

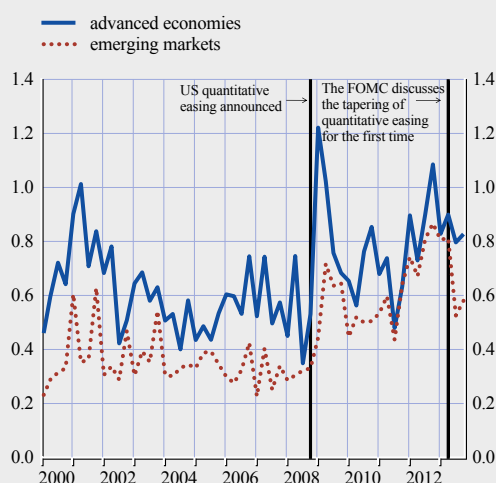
GLOBAL CORPORATE BOND ISSUANCE AND QUANTITATIVE EASING

Global non-financial corporate bond issuance has surged over the last four years. This increase has been particularly pronounced in emerging market economies (EMEs), where gross issuance has reached unprecedented levels, while issuance in advanced economies has also reached elevated levels by historical standards.

This rise in global corporate bond issuance has coincided largely with the inception of quantitative easing policies, notably the large-scale asset purchases of the US Federal Reserve System. In terms of *timing*, the rise in EME issuance appears to have corresponded largely with the introduction of quantitative easing in the United States in late 2008, while a noteworthy retrenchment accompanied signals of a potential withdrawal in mid-2013 (see Chart A). It terms of *extent*, issuance was also highly synchronised across countries, suggesting that common factors played an important role in driving global issuance activity. Since 2009, issuance has been above average, or in the highest quartile, in an

Chart A Global bond issuance by non-financial corporations

(Q1 2000 – Q4 2013; percentage of GDP)



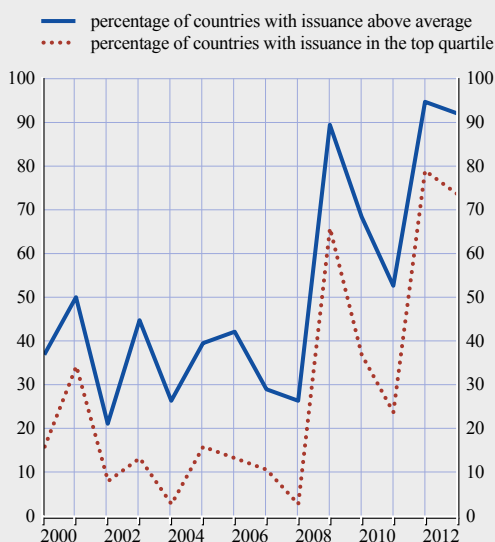
Source: Dealogic.

increasingly large number of countries, and was in the highest quartile almost everywhere in 2012 and 2013 (see Chart B).

US quantitative easing may have increased global bond market activity through at least two demand channels. First, its effectiveness in improving US and global financial conditions (by providing lower yields and reducing volatility) may have more than attenuated any cyclical downturn in bond issuance. Second, investor portfolio rebalancing across asset classes and countries may have resulted from the lowering of expected yields in the United States and/or reduced supply of certain US assets to the public. Clearly, supply factors may have also been at play. Bank deleveraging as part of the balance sheet adjustment process following the global financial crisis could have contributed to an unusually high degree of bank disintermediation in favour of market issuance by the corporate sector.

Chart B Synchronisation of non-financial corporations' bond issuance across countries

(2000 – 2013; percentage of total number of countries)



Source: Dealogic.

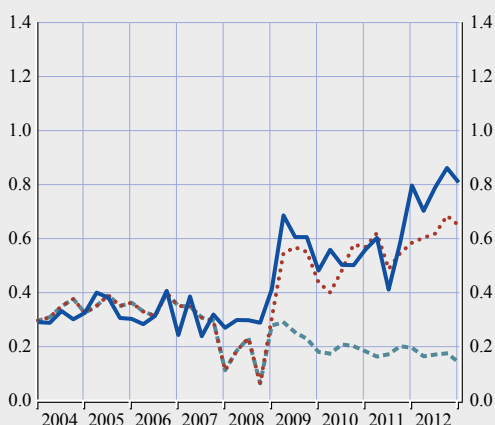
Note: Sample includes 18 emerging market and 19 advanced economies (excluding the United States).

Chart C Global bond issuance by non-financial corporations – actual and estimated impact of US quantitative easing

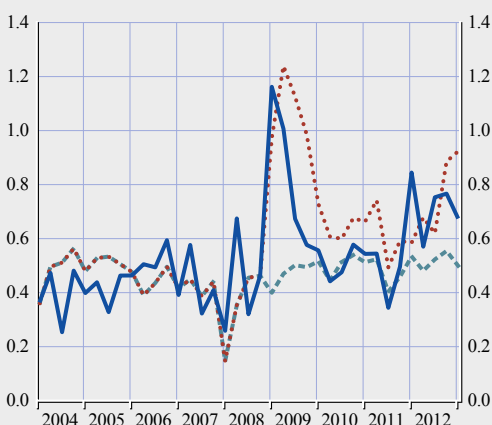
(Q1 2004 – Q1 2013; percentage of GDP)

— actual issuance
... prediction
--- issuance without quantitative easing

a) Emerging markets



b) Advanced economies



Source: Lo Duca, M., Nicoletti, G. and Vidal Martinez, A., "Global corporate bond issuance: what role for US quantitative easing?", *Working Paper Series*, No 1649, ECB, March 2014.

Note: Analysis excludes the United States.

One way of quantifying the impact of quantitative easing on global bond markets is to conduct a counterfactual analysis on the basis of a panel regression framework.¹ The results suggest that if securities held on the Federal Reserve System's balance sheet had been held steady at their level in the fourth quarter of 2008, EME issuance would have been approximately half of their actual issuance since 2009, with the gap increasing in late 2012. In advanced economies, bank deleveraging contributed to a greater need for alternative financing for non-financial corporations after 2009, while the impact of quantitative easing was smaller than in EMEs and concentrated in early 2009, mainly as a reflection of portfolio rebalancing related to the first wave of purchases of mortgage-backed securities by the Federal Reserve System after 2009.²

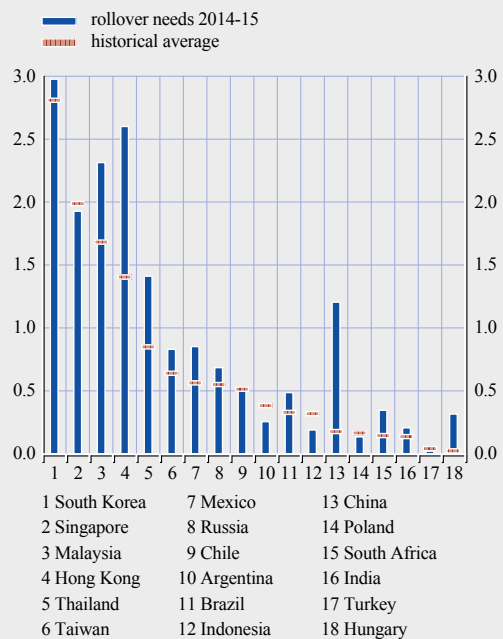
The results suggest that the Federal Reserve System's ongoing tapering of its quantitative easing programme might curtail EMEs' corporate bond issuance. Such an effect could be amplified by possible rollover risks.

Corporate bond rollover needs for 2014 and 2015 are high compared with the historical average in a number of countries (see Chart D). In this respect, EMEs with higher refinancing needs are most exposed to rollover risks, mainly China, Hong Kong SAR, Malaysia and Thailand, but to a lesser extent also Brazil, Hungary, South Korea, Mexico, South Africa and Russia, with the latter currently also exposed to heightened political risks.

All in all, just as the quantitative easing in the United States seems to have played an important role in driving issuance activity in global corporate bond markets over recent years, the tapering of the Federal Reserve System's quantitative easing programme might have the opposite impact. Amid significant rollover needs in a number of key EMEs, close monitoring of developments will be required as regards the prospective repercussions of this on global bond markets and, by extension, euro area financial stability.

Chart D Non-financial corporations' bond rollover needs in selected emerging economies in 2014 and 2015

(percentage of GDP; annual average)



Source: Dealogic.

Notes: Non-financial corporate bonds maturing by the end of 2015. The "historical average" refers to the period 2000-12.

1 A panel model investigates this issue by relating bond issuance by non-financial corporations to US quantitative easing in 19 advanced economies – excluding the United States – and 18 EMEs after controlling for a number of domestic and global factors that might affect bond issuance, including controls for investors' risk aversion (using the VIX), countries' growth prospects and bank deleveraging. For more details on the methodology, see Lo Duca, M., Nicoletti, G. and Vidal Martinez, A., "Global corporate bond issuance: what role for US quantitative easing?", *Working Paper Series*, No 1649, ECB, March 2014.

2 The presented charts correspond to a scenario in which it is assumed that the US ten-year yield and the VIX remain at their historical averages. In the cited paper, different assumptions are also examined with very similar results: bond issuance in EMEs has been substantially more influenced by the US large-scale asset purchase programmes than bond issuance in advanced economies.

*Continued recovery
in advanced
economies...*

*... but downside
risks remain*

Recent economic trends in major **advanced economies** outside the euro area, including the United States, Japan and the United Kingdom, indicate a gradual recovery ahead, but risks to global growth remain tilted to the downside. In particular, still weak (albeit improving) labour market conditions, continued balance sheet adjustment in the financial and non-financial private sectors and a process of fiscal consolidation that is still incomplete in several countries continue to weigh on near-term growth prospects. However, most such growth-restraining factors are expected to dissipate, as continued strong monetary policy support, further improving financial market conditions and a gradually waning drag from fiscal consolidation slowly translate into firming economic activity.

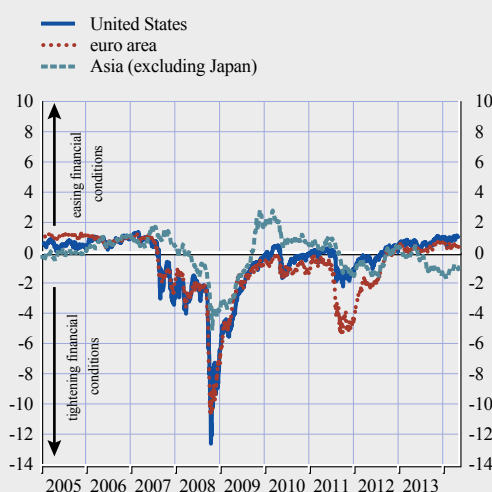
In the **United States**, the ongoing recovery lost some momentum in early 2014, but, given that this was mainly weather-related, the pace of the recovery in output and employment is expected to pick up going forward owing to easing headwinds from fiscal tightening and household deleveraging. The upturn in economic activity continues to be bolstered by a monetary policy stance which remains highly accommodative despite the tapering of asset purchases. At the same time, short-term fiscal risks have abated given the debt ceiling extension until March 2015. Strongly increasing delinquency rates on student loans that are directly extended or guaranteed by the federal government may imply some additional, but manageable, fiscal risks. A financial stability risk relates to the strong growth in mortgage real estate investment trusts, which rely on short-term borrowing to finance longer-term mortgage-backed security (MBS) purchases. A sharp sell-off in MBS holdings in the face of rising interest rates could expose banks to declines in the value of MBS holdings.

In **Japan**, the economy surged in the first quarter of 2014, ahead of the consumption tax hike in April. Fiscal policy support should help bolster activity going forward and offset some of the expected drop in demand following the consumption tax increase in April and again in 2015. Despite these tax hikes, fiscal risks remain. The high level of public indebtedness, which is likely to rise further over the medium term, represents a risk for both the sustainability of public finances and financial stability. Japanese banks' domestic government bond holdings are sizeable, despite having dropped since late 2012, and account for some 16% of their total assets. Thus, any major risk reassessment by financial markets may have an adverse impact on Japanese banks' profitability and solvency.

The **United Kingdom** has experienced robust economic growth recently, which has continued in early 2014. However, weak productivity developments, the ongoing process of balance sheet repair in the private and public sectors, and subdued dynamics in real household income will weigh on economic activity, which is set to decelerate slightly over the medium term. The continued recovery in property markets could provide some relief for highly indebted households in the short run, but in an

Chart 1.5 Financial conditions in selected advanced and emerging market regions

(Jan. 2005 – May 2014; number of standard deviations)



Source: Bloomberg.

Notes: Bloomberg's financial conditions index tracks overall stress in the money, bond and equity markets. Yield spreads and indices are combined and normalised. The values of this index are Z-scores, which represent the number of standard deviations by which financial conditions are above or below the average level of financial conditions observed during the pre-crisis period from January 1994 to June 2008.

*Emerging markets
have lost further
momentum*

environment of low interest rates, it may also increase the risk of unsustainable debt dynamics in the longer term.

In contrast to the gradually improving economic outlook in major advanced economies, **emerging economies** have lost further momentum, while also experiencing renewed tensions at the beginning of the year. Financial conditions have remained tight in emerging economies (see Chart 1.5) with the start of the Federal Reserve System's tapering of its quantitative easing programme and the weakening economic growth outlook in major emerging economies, including continued concerns related to the stability of China's financial system. Emerging economies with poorer (domestic and external) fundamentals, weak policy credibility and more limited policy space to absorb adverse shocks proved to be more vulnerable to shifts in investor sentiment. Such idiosyncratic concerns became manifest in capital flow reversals and strong currency depreciations in several countries (see Chart 1.6). That said, the

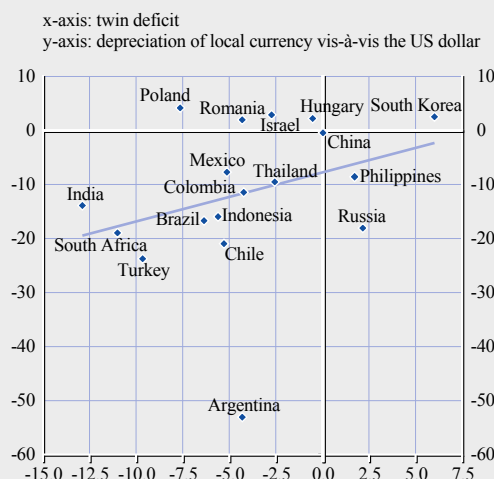
global implications of these emerging market tensions should remain limited, provided that the turmoil does not intensify and remains confined to a small number of countries. By contrast, a more widespread and sustained emerging market stress may entail significant downside risks to the global recovery, and to euro area growth prospects, in particular if the current period of slowdown turns out to be symptomatic of deeper structural problems across a wider set of emerging economies.

*Economic activity
in emerging Europe
benefits from euro
area recovery...*

Akin to developments seen in mid-2013, the impact on **emerging European economies** – notably the EU countries in central and eastern Europe – of the Federal Reserve System's decision to gradually reduce asset purchases, as well as that of the renewed emerging market tensions in early 2014, was limited. Even though not entirely cushioned against these events, generally sounder fundamentals, relatively subdued capital inflows to date and the early stage of economic recovery in most countries may explain a milder reaction relative to other emerging markets. The macroeconomic impact of the Russia-Ukraine tensions has been contained too (see Box 3), given rather limited direct export linkages, the lack of disruption in Russian gas exports to the region and confined financial market spillovers to date. However, a further escalation of events could potentially prove highly disruptive for the region. Given strong trade and financial links with the euro area, economic activity in the region is expected to benefit from the ongoing euro area recovery, but also from a gradual strengthening of domestic demand. However, the outlook in several countries is constrained by the fact that the process of balance sheet adjustment in both the private and public sectors is still incomplete. In spite of improved economic activity, credit growth remains muted in most countries, while a continued elevated level of non-performing loans and persistent currency mismatches in some countries continue to represent a financial stability risk going forward. At the same time, foreign banks, while being more selective in their strategies at the country level, are continuing to adjust towards a more self-sustained and domestically funded business model that should help mitigate risks to financial stability in the region.

Chart 1.6 Twin deficit and currency depreciation in selected emerging economies

(2013; percentage of GDP; percentage change vis-à-vis the US dollar)



Sources: IMF, ECB and ECB calculations.

Notes: The twin deficit is defined as the combined current account and budget deficit. Depreciation of local currency vis-à-vis the US dollar covers the period between early May 2013 and the end of March 2014.

Box 3

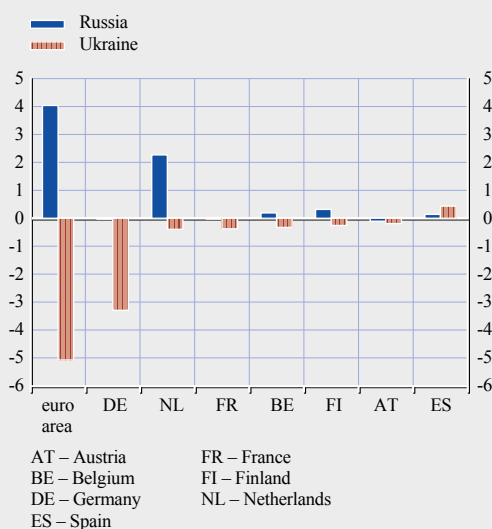
FINANCIAL STABILITY IMPLICATIONS OF THE CRISIS IN UKRAINE

Geopolitical tensions related to developments in Ukraine have been on the rise in recent months. The potential for such tensions to spill over into a larger conflict has given rise to short-lived bouts of financial market jitters against a backdrop of considerable political uncertainty. While the human and social costs of the crisis in Ukraine are clear, financial stability risks are harder to assess, given the still-evolving situation. Nonetheless, an analysis of direct euro area exposures can be illustrative in gauging the prospective economic and financial impact.

The direct *economic* impact on the euro area could be felt mainly through the trade channel, with related negative implications for euro area exports and, ultimately, economic growth. This channel seems relatively important in the case of Russia, while trade links to Ukraine appear to be much less relevant. The importance of the channels varies strongly by direction, with the euro area accounting for 40% of Russian merchandise exports and 30% of imports, while the corresponding figures for the euro area (net of intra-euro area trade) are below 10% for both exports and imports.¹ Russia therefore runs a trade surplus with the euro area as a whole, while the opposite is true for Ukraine (see Chart A). The interdependencies are concentrated in the energy area, with 18% of gas imports and 27% of oil imports by the euro area originating from Russia, which in turn constitute about half of Russia's commodity exports by value.

Chart A Merchandise trade balances for Russia and Ukraine vis-à-vis selected euro area countries

(percentage of 2013 GDP)

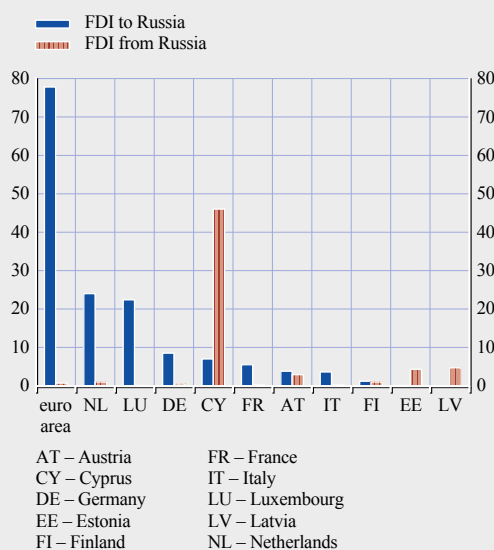


Source: IMF Direction of Trade Statistics.

Note: A positive balance indicates a trade surplus, i.e. the exports from Russia or Ukraine to a particular euro area country exceeding the imports from that country.

Chart B Country shares of total inward foreign direct investment in 2012

(2012; percentage of total)



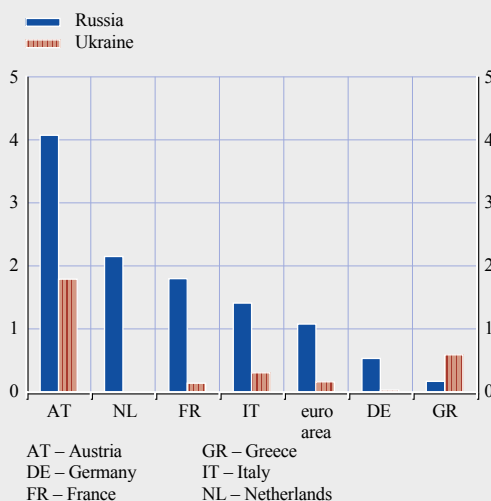
Source: IMF Coordinated Direct Investment Survey.

Note: "FDI to Russia" refers to the share of individual euro area countries in the stock of inward foreign direct investment to Russia; "FDI from Russia" refers to Russia's share in the inward foreign direct investment stock of the respective euro area countries.

¹ A similar pattern holds for the euro area and Ukraine, although the importance of that channel is dwarfed by Ukraine's exposure to Russia.

Chart C Foreign claims of BIS-reporting banks from selected euro area countries vis-à-vis Ukraine and Russia

(Q4 2013; percentage of GDP, ultimate risk basis)

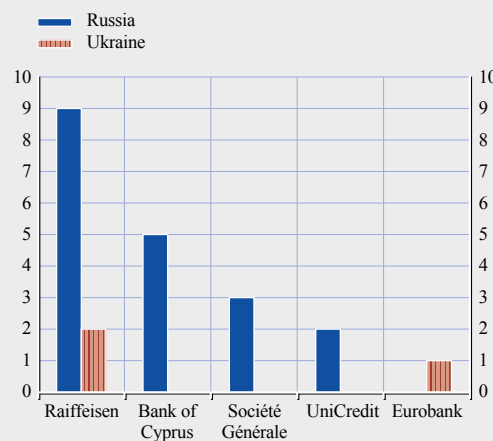


Sources: BIS Consolidated Banking Statistics and ECB calculations.

Note: Data for Austria and France on Ukraine refer to the latest publicly available data.

Chart D Selected euro area banks' exposures at default to Ukraine and Russia

(Q2 2013; percentage of total exposures at default)



Sources: EBA's 2013 transparency exercise and ECB calculations.

Notes: Exposure at default is defined as the sum of on-balance sheet exposures and the credit conversion factor of off-balance sheet exposures as per COREP definitions. See also footnote 2 for a discussion of the included sample.

The bulk of *capital flows* to Russia come from the euro area, while flows from Russia to the euro area, and those to and from Ukraine, are small in the aggregate. The euro area accounted for almost 80% of foreign direct investment (FDI) and 50% of the portfolio investment in Russia at the end of 2012, while the corresponding weights for Russia in the euro area were less than 1% in both investment categories. A notable exception is Cyprus, where almost 50% of inward FDI originates from Russia (see Chart B).

Concerning the direct *financial* channels, euro area bank exposures to Russia and Ukraine are significant for some countries and a few individual banks. Exposures exhibit considerable heterogeneity across countries, with Austria, France, Italy and the Netherlands displaying relatively large exposures (see Chart C). Four euro area banks have considerable exposures to Russia, while two banks are significantly exposed to Ukraine (see Chart D).² The largest exposures are, in general, recorded towards the non-financial private sector, while claims on banks and the public sector are relatively smaller.

The impact on the euro area has been contained so far as financial market reactions have been muted amid continuously high risk appetite, steady energy prices and largely unabated trade flows. Absent interruption of trade relations with Russia, direct economic effects can be expected to be small going forward. Financial stability risks could, however, mount over time owing to deteriorating economic developments in Russia and Ukraine, such as negative GDP growth, exchange rate depreciations and capital outflows. Such developments could have negative

2 Data collected through the EBA transparency exercise may understate banks' emerging market-related exposures as they were reported to the EBA to a minimum of (i) 90% of total exposure at default, and (ii) top ten countries in terms of exposure. Accordingly, banks which have, for example, low exposures to EMEs relative to their own total exposure, but high EME exposures in absolute terms when compared to other individual banks, are not included in the analysis. In other words, the analysis mainly captures banks' whose business model is tilted towards banking in EMEs.

effects on profit generation and credit quality for individual euro area banks with high exposures to these countries. Likewise, indirect effects – for instance, through trade and financial linkages with third countries – could lead to other propagation mechanisms. Ultimately, cumulating all such effects suggests that direct exposures represent only a fraction of the potential impact, thereby warranting continued close financial stability monitoring of these geopolitical tensions.

In contrast to developments in emerging Europe, several emerging economies in Asia and **Latin America** experienced more pronounced tensions in early 2014 as a result of the continued global repricing of risk in the context of the US Federal Reserve System's tapering. Capital outflows and downward pressures on local currencies were symptomatic of a further tightening of financial conditions, in particular in countries with higher underlying vulnerabilities and external financing requirements. At the same time, several economies in both regions face supply-side constraints amid limited room for policy manoeuvre, while structural problems continue to act as a drag on growth in some countries. In both regions, risks to the outlook remain tilted to the downside, with several countries in the late stage of the credit cycle. In this context, recent years' rapid credit growth may represent a challenge to a number of countries in the context of slowing economic growth, the normalisation of external financial conditions and the shift in the composition of financing away from bank lending towards unregulated or less-regulated market segments outside (but with strong linkages to) the banking sector.

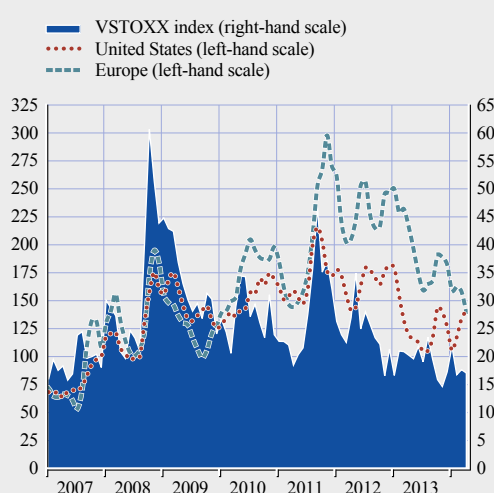
All these developments combined suggest a muted global recovery which is uneven across regions and countries. The recent benign financial market sentiment and the relatively low levels of economic policy uncertainty in both the United States and Europe (see Chart 1.7) may mask the fragility of the recovery. With risks remaining tilted to the downside, underlying vulnerabilities continue to pose a threat to economic recovery across the globe. A major global vulnerability relates to persistent real and financial global imbalances, which are still high by historical standards, although they have narrowed markedly since the onset of the global crisis. The high pro-cyclicality of this rebalancing highlights the need to also address persistent structural deficiencies. In addition, despite marked price corrections in some (mostly safe-haven) commodities in the course of 2013 (see Chart 1.8), high and – amid the renewed flare-up of geopolitical tensions (such as the current tensions between Ukraine and Russia) – possibly further rising commodity prices may add to the downside risks. This said, these predominantly supply-side upward pressures on commodity prices may to some extent be counterbalanced by demand-side factors such as the slowdown in growth

... while tighter financing conditions may weigh on the economic outlook in Asia and Latin America

The global recovery remains fragile despite falling uncertainty...

Chart 1.7 Economic policy uncertainty in the United States and Europe

(Jan. 2007 – Apr. 2014; points; three-month moving averages; percentages)

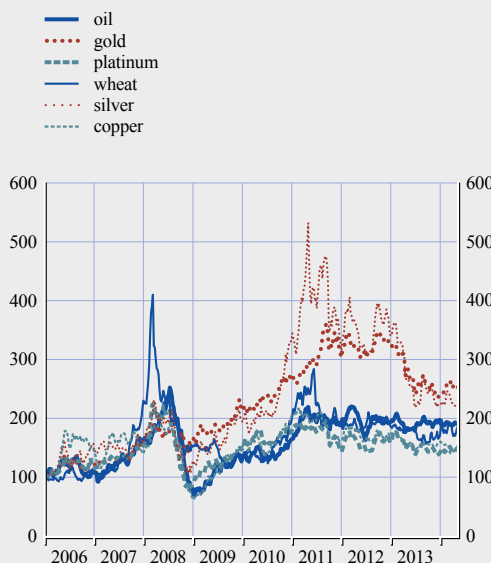


Sources: Baker, S., Bloom, N. and Davis, S.J., at www.policyuncertainty.com, and Bloomberg.

Notes: Europe refers to the five largest European economies, namely France, Germany, Italy, Spain and the United Kingdom. The economic policy uncertainty index for the United States is constructed from three types of underlying components. The first quantifies newspaper coverage of policy-related economic uncertainty. The second uses disagreement among economic forecasters as a proxy for uncertainty. The third reflects the number of federal tax code provisions set to expire in future years. For Europe, the index is constructed on the basis of the first component only. The VSTOXX is based on the EURO STOXX 50 Index options traded on Eurex. It measures implied volatility on options with a rolling 30-day expiry.

Chart 1.8 Selected commodity price developments

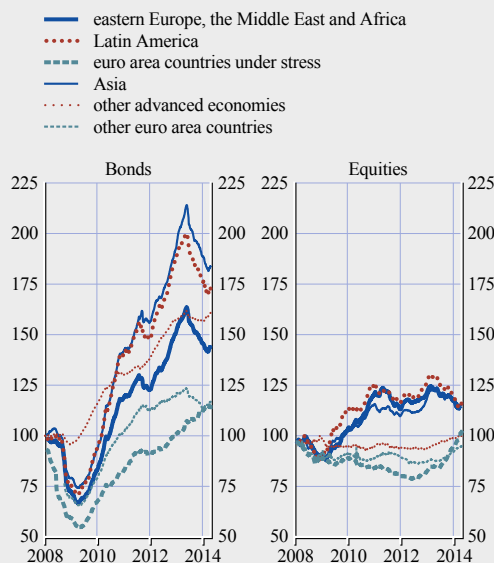
(Jan. 2006 – May 2014; index: Jan. 2006 = 100)



Source: Bloomberg.

Chart 1.9 Equity and bond flows to advanced and emerging market economies

(Jan. 2008 – May 2014; index: Jan. 2008 = 100)



Source: EPFR.

Note: Bonds include both sovereign and corporate bonds.

dynamics in major emerging economies. Lastly, as reflected by the resurfacing tensions in bond, equity and foreign exchange markets in emerging economies in early 2014, the risk of a sudden, disorderly and possibly more broad-based unwinding of global search-for-yield flows and related potential global exchange rate movements in the context of the incipient exit from unconventional monetary policies by some major central banks remains a cause for concern – especially in regions and market segments which have seen ample inflows during the last couple of years (see Chart 1.9).

... with related risks to euro area financial stability

All in all, macro-financial risks to euro area financial stability appear to be increasingly stemming from outside the euro area, in contrast to internal risks in previous crisis-ridden years. These external risks predominantly relate to the uncertainties surrounding the economic prospects of major emerging economies and the related potential slowdown in foreign demand, as well as the sustainability of the economic recovery in advanced economies outside the euro area. At the same time, the prospective real economy counterpart of any potential unwinding of search-for-yield flows continues to represent a key risk going forward. That said, several macro-financial risks also continue to originate from within the euro area. In particular, the ongoing process of balance sheet adjustment in both the financial and the non-financial sectors in several countries, a possible resurfacing of sovereign tensions, heightened political risks coupled with insufficient reform implementation, and continued (albeit diminishing) fragmentation in the real and financial realms still weigh on the underlying euro area growth momentum. Ultimately, the materialisation of any of these risks, or of a combination thereof, may translate into heightened credit losses for banks, with negative repercussions for asset quality, profitability or solvency. However, higher loan loss provisioning by banks and considerably strengthened capital buffers should increase the resilience of intermediation in a still fragile macro-financial environment.

1.2 A FURTHER MARKED FALL IN SOVEREIGN STRESS AMID CONTINUED ADJUSTMENT OF UNDERLYING VULNERABILITIES

Sovereign stress in the euro area has continued to decline, reaching lows not seen since 2009 or even earlier (see Chart 1.10). At the same time, fiscal adjustment has continued, reinforced by a firming economic recovery. Of particular note, 2013 fiscal outcomes beat targets in all EU-IMF programme countries at that time, i.e. Cyprus, Greece, Ireland and Portugal. In addition, the aggregate euro area **fiscal deficit**, at 3.0% of GDP, came out somewhat better than expected six months ago. Meanwhile, Ireland, Portugal and Spain have successfully exited their support programmes (limited to the financial sector in the case of the latter). With an outlook of continued fiscal adjustment in 2014, a promising cycle of upgrades to sovereign and bank ratings, and/or to the outlook for these ratings, has started in some euro area countries, including Cyprus, Greece, Portugal and Spain.

Despite progress to date in reducing fiscal and macroeconomic imbalances, sizeable reform commitments still need to be implemented. There are signs that fiscal adjustment risks remain procyclical, with the recent relative calm in euro area financial markets having the potential to breed complacency in terms of fiscal consolidation and structural reforms. The European Commission found that the progress made in the 2013 European Semester in terms of the country-specific structural and fiscal reform recommendations was limited overall. This finding was underlined further by the 2014 Annual Growth Survey, which stressed that substantial structural reforms, mainly those supporting growth in the short to medium term, are still necessary in the euro area. Moreover, the macroeconomic imbalance procedure suggests that, while overall imbalances have continued to adjust across the euro area, the high levels of private and public indebtedness leave several countries in vulnerable positions. More specifically, the Commission identified 11 euro area countries with macroeconomic imbalances, including “excessive” imbalances in Italy and Slovenia.

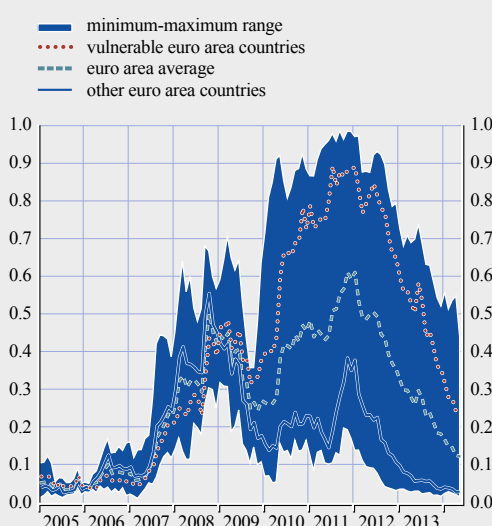
In terms of fiscal commitments, sizeable structural adjustments are still needed in most countries to put public debt on a firmly declining path. Many euro area countries are still far away from the medium-term objective of a close-to-balanced structural budget, despite the progress achieved in recent years (see Chart 1.11). In some of the euro area’s largest economies, notably France, Spain and Italy, nominal deficit outcomes in 2013 fell somewhat behind the targets set under the excessive deficit procedure or their stability programmes. Moreover, the 2014 draft budgetary plans, as reviewed by the Commission in late 2013, revealed only limited additional structural consolidation and

Sovereign stress in the euro area has fallen considerably...

... though imbalances remain...

Chart 1.10 Composite indicator of systemic stress in euro area sovereign bond markets (SovCISS)

(Jan. 2005 – May 2014)



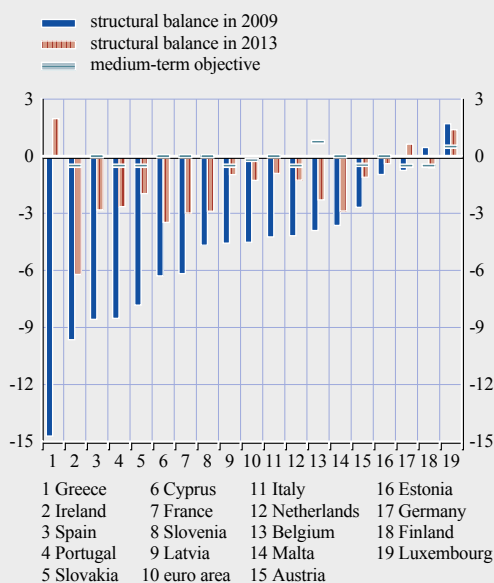
Sources: ECB and ECB calculations.

Notes: Aggregation of country indicators capturing several stress features in the corresponding government bond markets (changing default risk expectations, risk aversion, liquidity risk and uncertainty) for vulnerable (Greece, Ireland, Italy, Portugal and Spain) and other (Austria, Belgium, Germany, Finland, France and the Netherlands) countries. The range reflects the maximum and minimum across the entire set of above-mentioned countries. For further details on the CISS methodology, see Hollo, D., Kremer, M. and Lo Duca, M., “CISS – a composite indicator of systemic stress in the financial system”, *Working Paper Series*, No 1426, ECB, March 2012.

... presenting continued risks to public debt sustainability

Chart 1.11 Developments of structural budget balances across the euro area

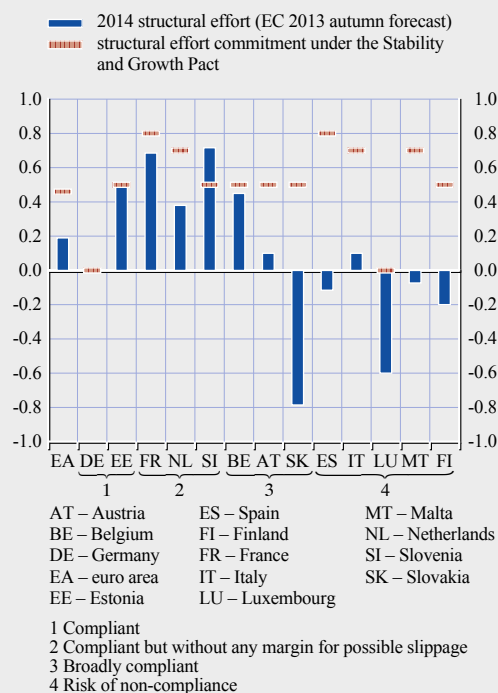
(percentage of GDP)



Sources: European Commission AMECO database, European Commission spring 2014 economic forecast and ECB.

Chart 1.12 Initial assessment of 2014 draft budgetary plans versus commitments made under the Stability and Growth Pact

(percentage of GDP)



Sources: European Commission and ECB.
Notes: Based on the European Commission's mid-November 2013 assessment of the 2014 draft budgetary plans of non-programme euro area countries. Luxembourg, Germany and Austria have meanwhile submitted revised draft budgetary plans following the investiture of new governments. For the first two countries, the draft budgetary plans were assessed to be fully compliant with the Stability and Growth Pact, while a risk of non-compliance under the Pact's preventive arm was found for Austria.

were at risk of falling short of commitments under the Stability and Growth Pact in five countries (see Chart 1.12). In early March the Commission also issued “autonomous recommendations” – a new surveillance instrument introduced under the two-pack regulations – for Slovenia and France to signal the risk of non-compliance with the 2015 excessive deficit procedure deadlines and to ask for additional consolidation measures.

Fiscal deficit is forecast to drop below 3% in 2014

Under current government plans, the aggregate euro area fiscal deficit is due to fall below the 3% Maastricht threshold this year – for the first time since 2008. According to the European Commission, if current budgetary plans are adhered to, the budget deficit for the euro area should decline from 3.0% of GDP in 2013 to 2.5% in 2014, and further to 2.3% in 2015. Compared with the Commission's forecast of six months ago, the deficit path has improved in most countries, owing, inter alia, to a permanent base effect from 2013, and in some countries, additional consolidation measures, particularly for 2015. Compared with the 2013 outcome, 2014 fiscal balances are expected to improve or remain broadly unchanged in the majority of countries (see Chart 1.13). However, absent additional fiscal consolidation in the context of the 2015 budgetary process, the fiscal balances are projected to deteriorate again in 2015 in seven euro area countries, despite further improving economic conditions.

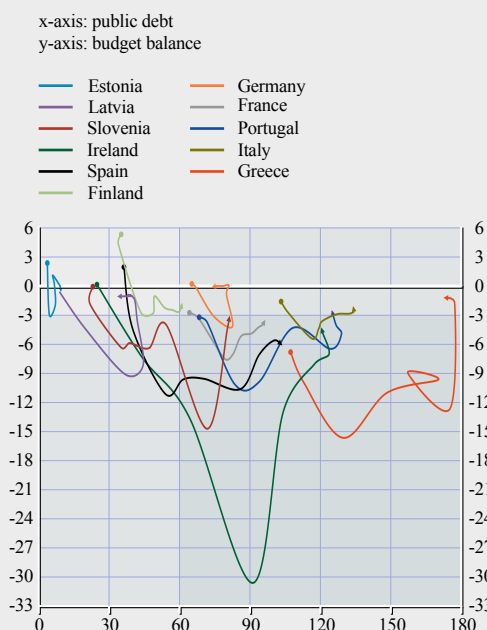
Financial sector support remains part of the story, notably in Greece and Slovenia where the impact of extraordinary one-off bank recapitalisation costs incurred in 2013 is subsiding. More generally, an unwinding of financial sector support is expected to contribute positively to the improvement of fiscal positions in 2014, although additional support measures may continue to weigh on public finances in several countries, mainly in Slovenia and Austria. Going forward, bail-in and bank resolution frameworks will probably exert a strong influence on any such prospective public capital injections into banks.

Despite progress in fiscal adjustment, the aggregate euro area **public debt**-to-GDP ratio has still been rising, but is expected to peak in 2014, at 96% of GDP. A move to a primary balance surplus is projected to contribute to debt reduction in 2015, for the first time in seven years. That said, compared with 2014, public debt levels are projected to increase further in seven euro area countries in 2015, barring additional fiscal consolidation measures. Compared with 2013, in almost all countries facing a projected increase in debt, the primary deficit and the deficit-debt adjustments are the main factors behind the rise in public indebtedness (see Chart 1.14).

Given the significant challenges that remain with respect to putting the high debt ratios on a firmly declining path, the continued implementation of fiscal and structural reforms is crucial for both debt sustainability and economic recovery. It should also help create sufficient fiscal space to support credible national backstops for banking sector distress. In this context, the banking union has the potential to reduce risks to public finances, in particular, over the medium term by mitigating the negative feedback loop between banks and sovereigns. While agreement has been reached on the establishment of the Single Resolution Fund for the financing of the orderly resolution of non-viable banks, the modalities of its common backstop, which could include public financing, are still under discussion.

Chart 1.13 Budget balances and public debt levels in selected euro area countries

(2007 – 2015; percentage of GDP)



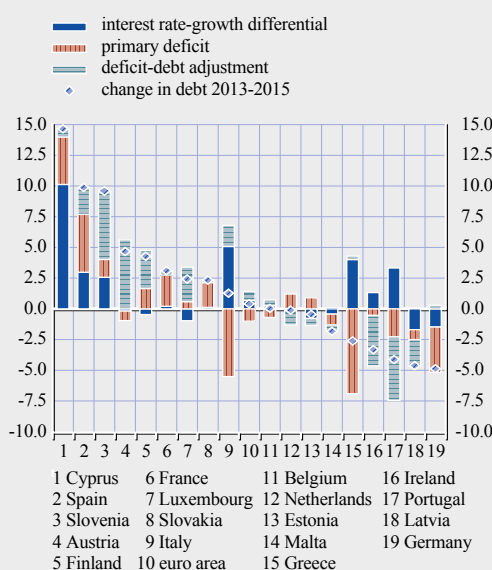
Source: European Commission spring 2014 economic forecast.

Fiscal balances less affected by support to the financial sector in 2014

Public debt is expected to peak in 2014, but to then decline, albeit gradually, from very high levels

Chart 1.14 Changes in public debt levels across the euro area over 2013-15

(2013 – 2015; percentage points of GDP)



Source: European Commission spring 2014 economic forecast.

Reform commitment remains crucial, including completing EMU

Financing needs remain sizeable in some countries in 2014

In this context, newly designed bail-in and bank resolution frameworks should help avoid moral hazard and limit any potential fiscal implications.

The crisis has vividly illustrated that severe financial stability risks can stem from liquidity strains, as well as from perceived credit risks. An analysis of **sovereign financing** needs suggests that the gross financing needs for 2014 as a whole (including redemptions so far) remain significant in many euro area countries (see Chart 1.15), as reflected in securities redemption data up to the end of March 2014. Maturing sovereign debt in the near-to-medium term remains considerable in the euro area as well, albeit with major cross-country differences. At the end of March 2014, securities with a residual maturity of up to one year accounted for 21% of total outstanding debt securities in the euro area, or 15.4% of GDP. Around one-third of outstanding debt securities will mature within two years, and some 60% within five years. The average residual maturity of outstanding euro area government securities was 6.4 years, ranging from 3.1 years in Cyprus to 12.3 years in Ireland.

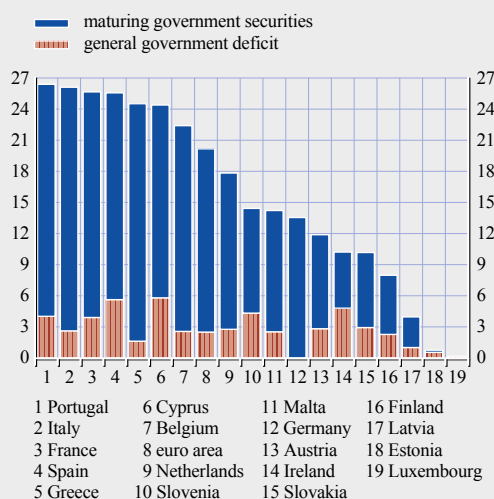
Recourse to financial assets may mitigate financing needs

Sovereign financing needs could be alleviated to some extent by recourse to existing financial assets. The consolidated financial assets held by euro area general governments averaged some 37.4% of GDP at the end of 2013, with some variation across countries. At the same time, the market value of consolidated general government liabilities in the euro area amounted to 104.1% of GDP (see Chart 1.16), yielding net financial liabilities of around 66.7% of GDP.

In general, the shock-absorption capacity of financial assets for smoothing governments' financing needs depends on their liquidity and marketability, which is arguably inversely related to sovereign stress. In this vein, long-term financial assets held by public institutions, such as pension funds or other special general government entities, can in principle not be used for servicing central government debt.

Chart 1.15 Maturing government debt securities and projected deficit financing needs of euro area governments in 2014

(percentage of GDP)

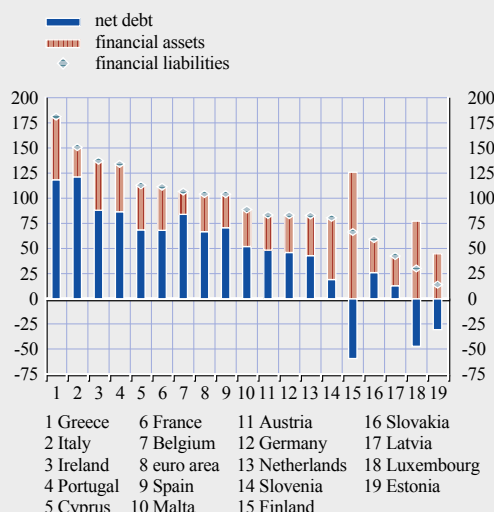


Sources: European Commission spring 2014 economic forecast, ECB and ECB calculations.

Notes: Gross financing needs are estimates of government debt securities maturing in 2014 (already redeemed and outstanding as at the end of March) and the government deficit. The estimates are subject to the following caveats. First, they only account for redemptions of debt securities, while maturing loans are not included. Second, some government securities do not fall under the definition used in the ESA 95 for general government debt. Third, estimates disregard that some maturing government securities are held within the government sector. Finally, refinancing needs corresponding to short-term debt issued after March 2014 are not fully reflected in the data.

Chart 1.16 Euro area governments' net debt, financial assets and financial liabilities

(Q4 2013; percentage of GDP)



Sources: Eurostat, national sources and ECB calculations.

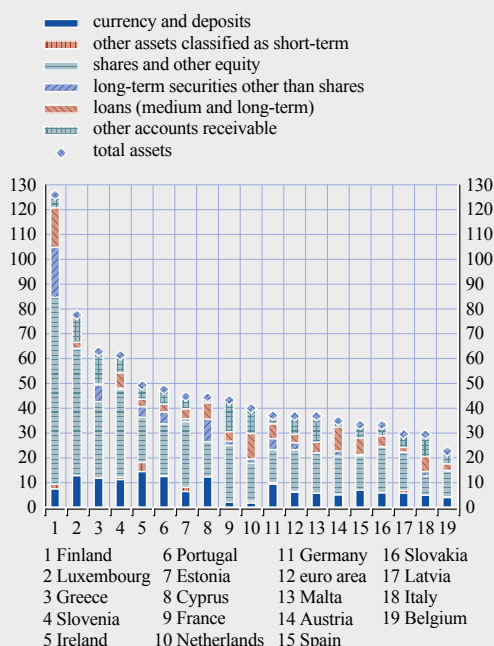
By contrast, short-term liquid assets, such as currency and deposits, which amounted to 6.1% of GDP at the aggregate euro area level (see Chart 1.17), can be more easily used to cover short-term financing needs. Shares and other equity accounted for the largest part of financial assets in most euro area countries, averaging 16.8% of GDP at the euro area level. However, cross-country heterogeneity is high in this respect, ranging from 7.8% in Italy to 75.3% in Finland. In the latter country, a sizeable proportion of total financial assets is held in employment pension schemes and other social security funds, which are part of the general government. Another major component of financial assets is “other accounts receivable”, which incorporates various claims of the general government vis-à-vis the rest of the economy, including tax arrears towards the government. This component – in which the degree of liquidity for individual items can vary considerably – reached 7.3% of GDP at the aggregate euro area level, ranging from 2.2% in Cyprus to 13% in Greece. In sum, financial assets of governments are an important element in assessing sovereign liquidity and debt sustainability problems.

I.3 IMPROVED EARNINGS OUTLOOK TO SUPPORT ONGOING BALANCE SHEET ADJUSTMENT IN THE NON-FINANCIAL PRIVATE SECTOR

Income and earnings risks for the euro area non-financial private sector have subsided somewhat, as a result of gradually improving macroeconomic conditions. The income situation of *households* continues to stabilise as economic recovery takes root. Credit risk stemming from household balance sheets across the euro area appears to be falling, as signalled by a continued normalisation in the distance-to-distress indicator following historical lows seen at the height of the euro area sovereign debt crisis at the turn of 2011/12 (see Chart 1.18). At the same time, euro area households’ expectations regarding their financial situation have improved further and are now back to levels seen before the unfolding of the euro area sovereign debt crisis in the second quarter of 2010. This comes as underlying changes in

Chart 1.17 Structure of euro area governments’ financial assets

(Q4 2013; percentage of GDP)

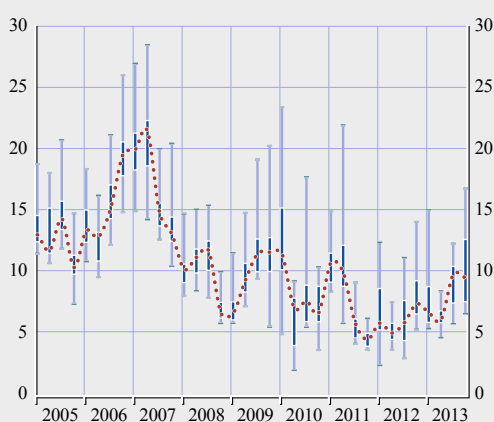


Sources: Eurostat, national sources and ECB calculations.

Note: Other assets classified as short-term include short-term securities other than shares, short-term loans and monetary gold.

Chart 1.18 Households’ distance to distress in the euro area

(Q1 2005 – Q4 2013; number of standard deviations from mean)



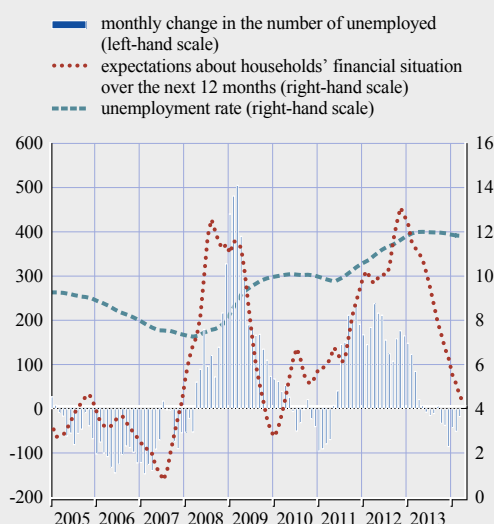
Sources: ECB, Bloomberg, Thomson Reuters Datastream and ECB calculations.

Notes: A lower reading of distance to distress indicates higher credit risk. The chart shows the median, minimum, maximum and interquartile distribution across 11 euro area countries for which historical time series cover more than one business cycle. For methodological details, see Box 7 in *Financial Stability Review*, ECB, December 2009.

Improving economic conditions mitigate income and earnings risks

Chart 1.19 Expectations about households' financial situation and changes in the number of unemployed in the euro area

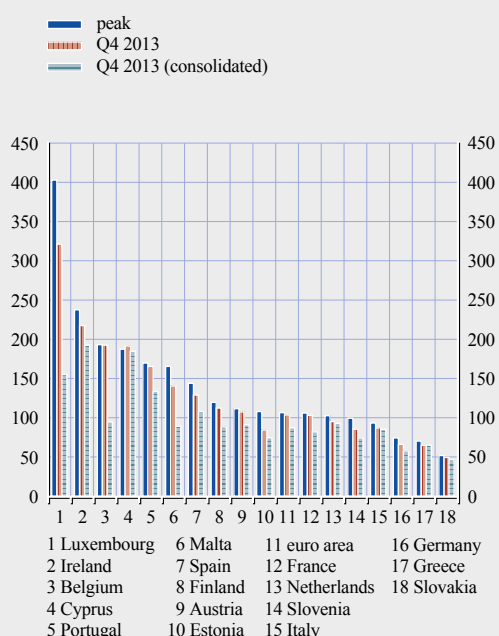
(Jan. 2005 – Apr. 2014; number in thousands, seasonally adjusted; percentages; percentage balances; three-month moving averages)



Sources: European Commission Consumer Survey and Eurostat.
Note: Expectations about households' financial situation are presented using an inverted scale, i.e. an increase (decrease) of this indicator corresponds to less (more) optimistic expectations.

Chart 1.20 Indebtedness of the non-financial corporate sector across the euro area

(Q4 2013; amounts outstanding; percentages of GDP; unconsolidated data unless otherwise stated)



Sources: ECB and ECB calculations.
Notes: The peak denotes the maximum value between Q1 2000 and Q4 2013. Unconsolidated debt is defined as loans, debt securities and pension fund reserves, but also includes cross-border inter-company loans, which may be meaningful in countries where international holding companies are traditionally located (e.g. Belgium, Ireland and Luxembourg). Consolidated debt is defined as loans (excluding inter-company loans), debt securities and pension fund reserves.

the number of unemployed signal that the unemployment rate may have peaked at the aggregate euro area level (see Chart 1.19). Nevertheless, labour market conditions continue to be weak in vulnerable euro area countries, thereby further weighing on households' income prospects. Reduced saving capacities, as reflected by decreasing (e.g. Ireland, Spain) or negative (i.e. Greece) saving rates, also render households in some countries vulnerable to renewed adverse income shocks.

The profitability of euro area *non-financial corporations* has also benefited somewhat from gradually improving economic conditions, although it remains muted. Gross operating income has picked up slightly, amid lower negative earnings growth per share and falling expected default frequencies for listed firms. While these signs are promising, corporate earnings in the euro area are expected to rise only slowly, with firms' capacity to bolster capital through retained earnings likely to remain contained.

Despite gradually improving income and earnings prospects, legacy balance sheet issues continue to weigh on the aggregate euro area non-financial private sector, notably in the corporate sector. Average euro area **indebtedness** stood at 64.4% of GDP for euro area households at the end of 2013, and at 103.6% for non-financial corporates, even though – at some 87% of GDP – the latter

Private sector indebtedness remains high, but gradually adjusting...

figure is much lower on a consolidated basis (see Chart 1.20). However, signs of a gradual balance sheet adjustment are apparent, even if the adjustment process may seem to have been rather modest at the aggregate euro area level to date, since household and non-financial corporate indebtedness only reached its peak in 2010. This reflects both the usual pattern of somewhat delayed debt deleveraging, i.e. the lagging pattern of bank credit around turning points in economic activity, and the sharp contraction in real GDP, i.e. the so-called “denominator effect”.

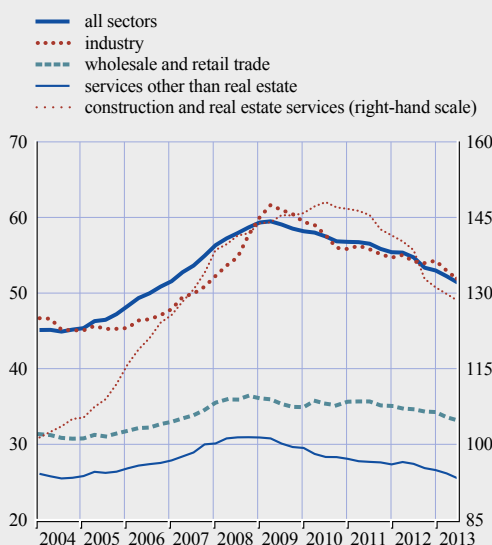
The process of deleveraging to date suggests that the speed of adjustment has been greatest in individual countries or sectors of economic activity that had accumulated large amounts of debt in the run-up to the crisis, and were accordingly most severely affected by it. For example, substantial progress has been made in terms of corporate deleveraging in Spain, Estonia and Ireland (see Chart 1.20), while in other countries like Portugal and Cyprus, weak economic activity to date has limited the reduction of corporate debt levels. The same pattern is true at the sectoral level, whereby overindebted sectors have tended to adjust more markedly than less indebted ones. In fact, at the aggregate euro area level, corporate indebtedness has dropped considerably in the construction and real estate services sector since its peak in 2010 (see Chart 1.21), in particular driven by adjustment in countries that experienced housing booms prior to the financial crisis, such as Estonia, Ireland and Spain.

The gradual economic recovery and the related improvements in households’ and non-financial corporations’ income and earnings situation is expected to help the ongoing process of balance sheet repair. Still, this will be a longer-term process, in particular in the household sector given continued weak labour market conditions in some countries. In countries with highly indebted non-financial private sectors, the deleveraging process may also continue for some time going forward, reflecting both firms’ balance sheet restructuring and banks’ selective credit standards. A sustained economic recovery, coupled with an enhanced restructuring process in the financial and non-financial sectors, seems vital for households and firms to be able to repair their balance sheets more swiftly.

In the current environment of low interest rates, together with the low cost of market-based funding, average household and non-financial corporate interest payment burdens have touched record lows. Relative price adjustments across countries may present debt servicing challenges in cases where a fall in the price level contributes to a rising real debt burden. At the same time, however, the low interest rate environment is helping to bolster households and firms’ debt servicing capacities and the restructuring of balance sheets. Ongoing balance sheet repair should help offset the challenges related to an eventual normalisation of interest rates and the ensuing rise in debt servicing burdens. Such challenges might be greatest for those countries where loans with floating rates or rates with

Chart 1.21 Ratio of MFI loans to gross value added across euro area sectors of non-financial economic activity

(Q1 2004 – Q3 2013; percentages)



Sources: ECB and ECB calculations.

Notes: Sectors are defined according to the NACE Rev.2 classification. Data are based on outstanding MFI loans and the four-quarter moving sum of the gross value added.

... amid a continued high degree of cross-country heterogeneity

Favourable interest rate environment facilitates debt servicing

Lending to the non-financial private sector remains muted amid a continued improvement in financing conditions

A drop in bank lending to non-financial corporations...

rather short fixation periods preponderate. That said, a higher debt service burden for borrowers in a rising interest rate environment is likely to be partly offset by the positive impact of an economic recovery on households' and firms' income and earnings situation.

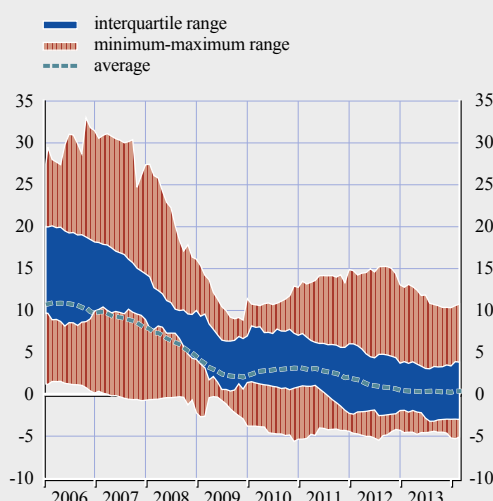
Lending flows to the non-financial private sector have remained muted, reflecting a combination of ongoing balance sheet repair across the financial and non-financial sectors and related disintermediation forces. On average, bank lending to euro area *households* has remained subdued, but appears to have stabilised amid a continued high degree of cross-country heterogeneity (see Chart 1.22). Looking at the components of bank lending by purpose, modest annual growth in loans for house purchase is offset by a drop in consumer loans and other types of lending. Nevertheless, in line with the gradual economic recovery, the April 2014 euro area bank lending survey suggests further improvements in the financing conditions for households, as reflected by the net easing of credit standards on loans to households and the net increase in demand for such loans.

Credit supply constraints appear to be easing, particularly for housing loans and, to a lesser extent, for consumer loans. Improving supply-side conditions indicate not only a reduction in the cost of funds and in balance sheet constraints for banks, but also improved expectations regarding the economic and housing market outlook (and, by extension, consumers' creditworthiness). In terms of credit demand, improving housing market prospects and consumer confidence have translated into a small net increase in the demand for both housing loans and consumer credit.

Corporate loan growth has shown fewer signs of returning vigour, amid ongoing disintermediation. The net external financing of euro area *non-financial corporations* continued to fall in early 2014 (see Chart 1.23), partly driven by investment dynamics remaining muted. The latest euro area bank lending survey suggests that demand for corporate loans in the euro area has continued to contract, albeit at a slower pace. This largely reflects lower financing needs for investments, but the

Chart 1.22 MFI lending to euro area households

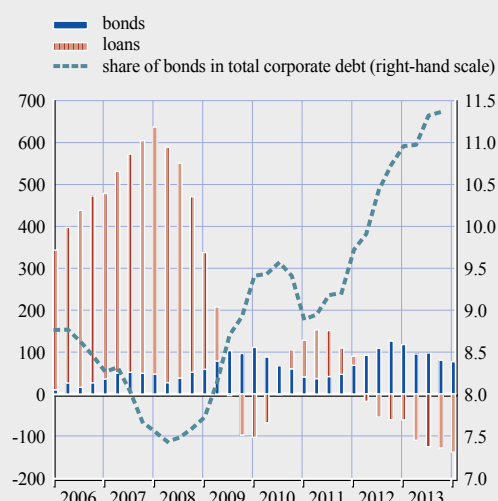
(Jan. 2006 – Mar. 2014; percentage change per annum)



Source: ECB.
Note: Data adjusted for securitisation.

Chart 1.23 External financing of euro area non-financial corporations

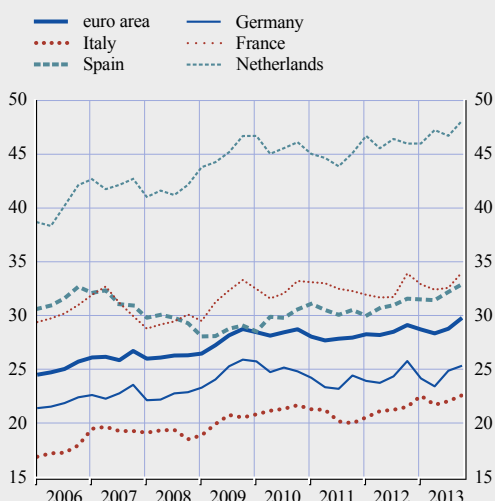
(Q1 2006 – Q1 2014; EUR billions; net annual flows; percentage)



Sources: ECB and ECB calculations.

Chart 1.24 Liquidity position of non-financial corporations in selected euro area countries

(Q1 2006 – Q4 2013; percentage of GDP)

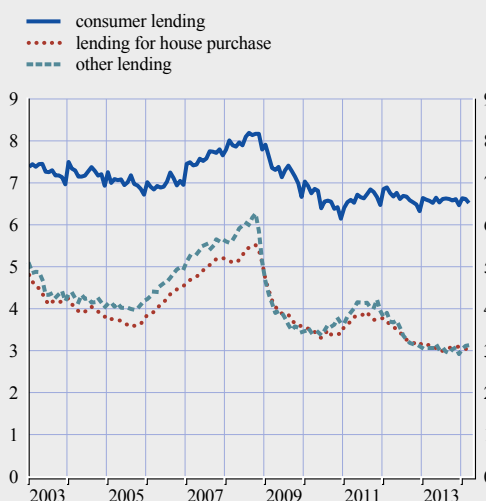


Sources: ECB and ECB calculations.

Note: Liquidity is defined as the sum of currency and deposits, short-term securities and mutual fund shares.

Chart 1.25 Euro area bank lending rates on new loans to households

(Jan. 2003 – Mar. 2014; percentages)



Source: ECB.

availability of internal funds and the shift toward market-based debt issuance appear to also play a role in explaining the subdued demand for bank loans. While the net tightening of euro area banks' credit standards for loans to non-financial corporations has continued to decline, developments by firm size showed that the decline in the net tightening of lending criteria for firms was more marked for loans to small and medium-sized enterprises (SMEs), for which banks reported a slight net easing for the first time since mid-2007.

While corporate disintermediation has continued, on aggregate the issuance of market-based debt has fallen short of compensating for the decline in new MFI loans to non-financial corporations (see Chart 1.23). This development also has a distributional counterpart, as diversification of funding sources has mainly remained limited to larger corporations, and to those which are mostly domiciled in countries with more developed corporate bond markets. At the same time, firms which are more dependent on bank funding, like SMEs and firms located in more vulnerable countries, have continued to face tight (albeit improving) credit supply conditions. The latest survey on SMEs' access to finance shows that financing conditions for SMEs have continued to diverge across the euro area, with persistent financing obstacles for SMEs in countries more strongly affected by the crisis.

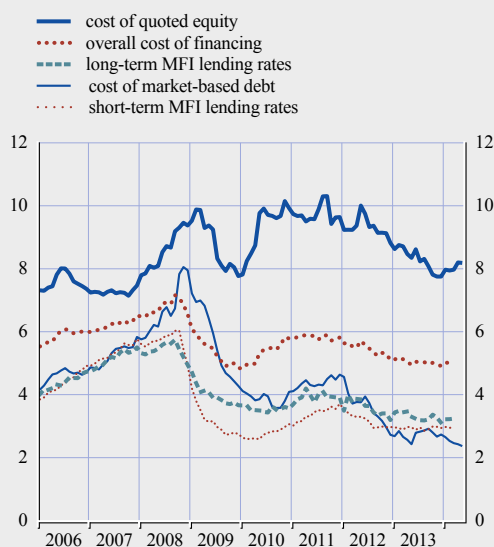
While the availability and cost of external finance has been mixed, non-financial corporations have built up internal funds steadily, with liquidity buffers at historic highs in several countries. Liquidity holdings of euro area non-financial corporations have risen gradually over recent years, reaching, on average, almost 30% of GDP at the end of 2013, with some degree of cross-country variation across the euro area (see Chart 1.24). These high liquidity buffers may reflect the lack of investment opportunities, but to some extent also precautionary motives (i.e. mitigating the risk of limited access to external financing in the future) in the context of a low opportunity cost of holding liquid assets and continued credit supply constraints in some countries.

... is partly offset
by the issuance of
market-based debt...

... and high
corporate liquidity

Chart 1.26 Cost of external financing for euro area non-financial corporations

(Jan. 2006 – May 2014; percentages)

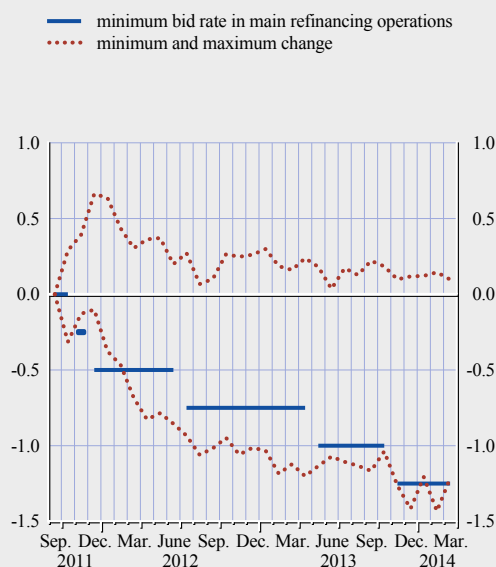


Sources: ECB, Merrill Lynch, Thomson Reuters and ECB calculations.

Note: The overall cost of financing for non-financial corporations is calculated as a weighted average of the cost of bank lending, the cost of market-based debt and the cost of equity, based on their respective amounts outstanding derived from the euro area accounts.

Chart 1.27 The ECB policy rate and the composite cost-of-borrowing indicator for non-financial corporations

(Sep. 2011 – Mar. 2014; cumulative percentage point changes)



Sources: ECB and ECB calculations.

Note: For methodological details on the construction of the cost-of-borrowing indicator, see “Assessing the retail bank interest rate pass-through in the euro area at times of financial fragmentation”, *Monthly Bulletin*, ECB, August 2013.

Financing costs have continued to drop, but the monetary transmission mechanism is still impaired...

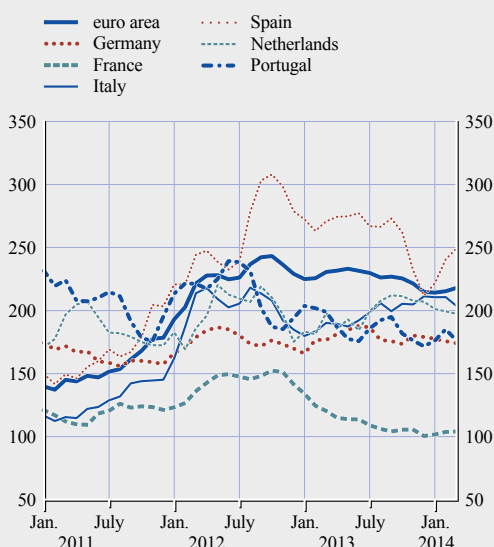
... as suggested by continued cross-country heterogeneity

Funding costs for the euro area non-financial private sector have continued to decline across most business lines, maturities and funding sources. Financing costs for euro area *households* are now at their lowest levels – since the reporting of harmonised euro area bank lending rates began in 2003 – for all categories of lending except consumer credit (see Chart 1.25). Similarly, overall financing costs for *non-financial corporations* have continued to fall across most external financing sources (see Chart 1.26), supported by a low interest rate environment and benign financial market conditions. Bank lending rates have continued to decline marginally, but the latest cuts in monetary policy rates have not yet been fully passed through (see Chart 1.27).

At the same time, fragmentation in lending conditions persists across countries, despite having decreased since the height of the euro area sovereign debt crisis. The cross-country divergence in the euro area, as measured by the range between the lowest and highest interest rate charged on loans to households, has remained at elevated levels, reflecting different country-specific risk constellations and persisting fragmentation in some euro area countries. The same holds true for corporates, where lending rates continue to vary widely across the euro area. On the one hand, this may be explained by the deteriorating creditworthiness of some corporations in more vulnerable jurisdictions owing to prolonged weak economic activity and strong uncertainty regarding the growth outlook, inducing banks to charge higher risk premia. On the other hand, the wide divergence in lending rates may reflect the spillover effects of sovereign market tensions on bank funding conditions, as well as some possible impact from banks’ deleveraging strategies in the context of adjustment towards higher regulatory capital and liquidity requirements.

Chart 1.28 Spread between lending rates on very small and large loans to non-financial corporations in selected euro area countries

(Jan. 2011 – Mar. 2014; basis points; three-month moving averages)

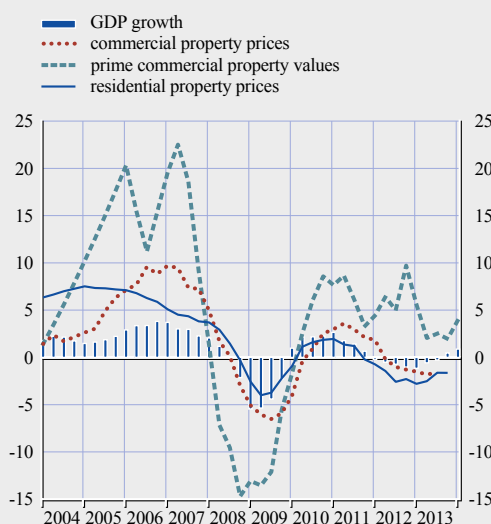


Sources: ECB and ECB calculations.

Notes: Very small loans are loans of up to €0.25 million, while large loans are those in amounts of more than €1 million. Aggregation is based on new business volumes.

Chart 1.29 Euro area commercial and residential property values and the economic cycle

(Q1 2004 – Q1 2014; percentage change per annum)



Sources: Eurostat, ECB, experimental ECB estimates based on IPD and national data, and Jones Lang LaSalle.

An improvement in aggregate euro area financing conditions has also been reflected by a declining spread between bank lending rates for very small loans and those for large loans to non-financial firms in most of the larger euro area economies (see Chart 1.28). At the same time, the marked difference between the loan pricing conditions for small and large firms, which primarily results from the divergence in firm-specific risks, highlights the more adverse conditions faced by small firms, particularly in more vulnerable countries. In part, these spreads may also reflect the fact that SMEs are more dependent on their respective domestic banking sectors than larger firms that have better access to global financial markets. Developments in firms' financial conditions continue to vary depending on firm size. According to the ECB's latest survey on the access to finance of SMEs in the euro area, the financial situation for large firms appears to remain more favourable than for SMEs as they reported an increase in turnover and profits. In addition, the success of large firms when applying for a bank loan was higher than for SMEs, indicating that large firms have better access to finance overall than SMEs.

Aggregate euro area **property market** developments remained muted towards the end of 2013. Residential property prices have continued to decline at the aggregate euro area level, amid some signs of a turnaround in some more vulnerable euro area countries. Commercial property markets have shown further signs of stabilisation overall, with broadly unchanged prices compared with the previous year (see Chart 1.29).

Zooming in on the commercial segment, however, price dynamics suggest a growing bifurcation between strong price increases in the *prime* segment (e.g. office and retail space in capital cities) and relatively moribund developments in the *non-prime* segment. In conjunction with these price increases, underlying transaction volumes in commercial property markets have risen steadily since

The availability and cost of non-financial corporations' funding is dependent on the firm size

Overall muted property market dynamics...

... though ebullience of prime commercial property

Fragmentation at the country level persists, amid signs of a turnaround in some countries

2009 (see Chart 1.30), underpinned by a surge in cross-border investment – in particular from non-European investors – which accounted for almost half of the total volume in the euro area in the final quarter of 2013. Foreign demand was particularly strong for property in Spain, Italy and Ireland. This could be a sign of a hunt for higher-yielding investments in a low interest rate environment, including from foreign real money investors, in particular Asian investors and sovereign wealth funds.

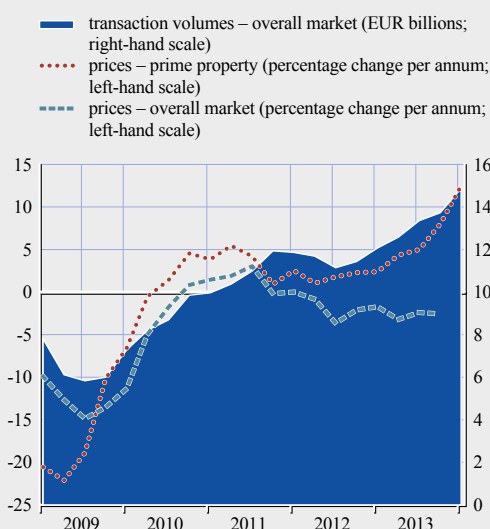
Notwithstanding developments in the prime commercial segment, property prices have shown a traditional tight link with underlying economic conditions across both residential and commercial market segments overall, with a high degree of cyclical underlying persistent fragmentation at the country level. Commercial and residential property prices continued to drop, mainly in more vulnerable euro area countries like Cyprus, Greece, Portugal and Spain, but also in the Netherlands. By contrast, prices were still on the rise in Austria, Belgium, Finland and Germany – while after a major multi-year adjustment in residential and commercial property markets, country-level data suggest a bottoming-out at low levels and an ensuing recovery in some countries, notably Ireland. While country-level developments have often remained relatively modest, strong house price growth in large urban areas or capital cities (e.g. in Germany and Austria) have contrasted with comparably subdued price movements in other regions. Indeed, the risk remains that strong house price growth may ripple to surrounding areas, as often witnessed in previous house price booms.

Overvaluation remains a concern in some countries

Similarly to price dynamics, valuations in euro area property markets also show a large degree of cross-country heterogeneity. According to such metrics, residential property prices for the euro area as a whole are broadly in line with fundamentals, while commercial property valuation estimates are still somewhat above their long-term average. Moreover, these aggregate developments mask strongly diverging country and regional dynamics.

Chart 1.30 Commercial property price changes and investment volumes in the euro area

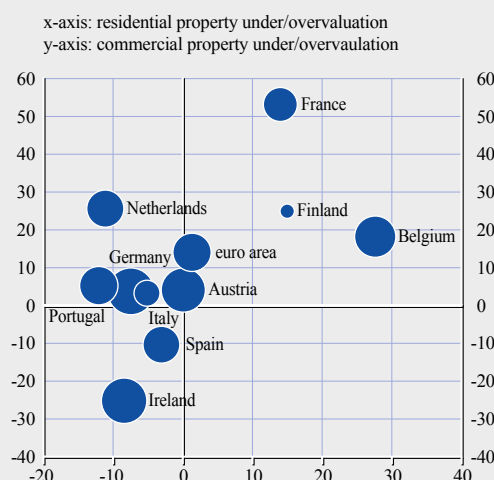
(Q1 2009 – Q1 2014; EUR billions; percentage change per annum; average of price changes in Austria, France, Germany, Ireland, the Netherlands and Spain)



Sources: DTZ Research, ECB, experimental ECB estimates based on IPD and national data and Jones Lang LaSalle. Note: Four-quarter moving average of investment volumes.

Chart 1.31 Estimated over/undervaluation of residential and prime commercial property prices across the euro area

(Q1 2014; percentages)

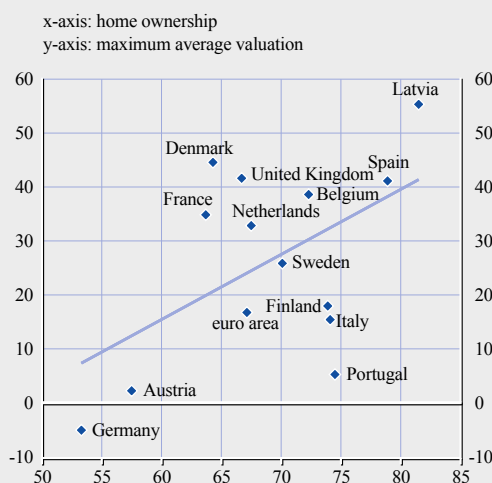


Sources: Jones Lang LaSalle, ECB and ECB calculations. Notes: The size of the bubble reflects the expected change in real GDP growth in 2014. Estimates for residential property prices refer to Q4 2013 and are based on four different valuation methods: price-to-rent ratio, price-to-income ratio and two model-based methods. For details on the methodology, see Box 3 in *Financial Stability Review*, ECB, June 2011. For further details on valuation estimates for prime commercial property, see Box 6 in *Financial Stability Review*, ECB, December 2011.

Residential and commercial property market valuations have fallen significantly from previous peaks in a number of countries such as Ireland and Spain, as the continued unwinding of pre-crisis excesses has brought prices down to the level suggested by the underlying values or even lower. By contrast, estimated overvaluation remains high in both market segments in Belgium, Finland and France (see Chart 1.31). Similar disparities may emerge at the regional level, as suggested, for example, by the estimated noticeable overvaluation of residential property in some large German cities. While the above signals provide some insight into prospective trends, such valuation estimates are surrounded by high uncertainty as they do not take into account country-level specificities, such as fiscal treatment or various structural aspects of housing. For example, the rate of home ownership is positively correlated, albeit weakly, with the degree of maximum overvaluation experienced in euro area economies over the past decade (see Chart 1.32).

Chart 1.32 Maximum average valuation of residential property prices and home ownership ratios in selected EU countries

(2012; percentages)



Sources: Eurostat, ECB and ECB calculations.

Notes: The maximum average valuation is calculated as the maximum of the average of the four valuation indicators over the period from Q1 2000 to Q4 2013. Valuation estimates are based on four different valuation methods: price-to-rent ratio, price-to-income ratio and two model-based methods. For details on the methodology, see Box 3 in *Financial Stability Review*, ECB, June 2011.

All in all, the outlook for euro area property markets is expected to remain muted on aggregate, with the risk of potential corrections in some countries contrasting with emerging housing market recovery in others. Given a high correlation with the business cycle, a key downside risk to property markets relates to the pace of economic recovery, alongside any prospect for a potential increase in risk aversion and the related rise in long-term benchmark interest rates. Clearly, housing finance is a key conduit for such risks, given the potential to destabilise the debt servicing capacity of both households and commercial property investors. Given the leveraged nature of property lending, newly available macro-prudential real estate tools may help to counteract such risks for both banks and borrowers in the future.



2 FINANCIAL MARKETS

A broad-based decline in risk premia has continued across advanced markets, as investors shift increasingly into high-yield bonds and equities. A significant strengthening of foreign demand has benefited euro area markets, contributing to a reduction in fragmentation across all key market segments (money market, sovereign, corporate and equity). This comes amid increased confidence in euro area fundamentals, alongside a rebalancing of portfolios away from emerging markets, and in a context of generalised search for yield by global investors. The latter phenomenon gives rise to financial stability concerns amid growing signs of potential misalignments in global bond markets, as well as indications of a general decline in underwriting standards, increased use of leverage, in particular by hedge funds, and a decline in credit standards on securities funding.

The persistence of current benign market conditions largely hinges on three key factors. First, continued strong investor confidence centres on a fragile euro area recovery with significant downside risks. In view of this, low levels of corporate default and volatility could be tested by a normalisation of global liquidity conditions. Second, strong risk appetite among global investors could be threatened by rising geopolitical tensions, growing vulnerabilities in emerging markets or an unexpected increase in global benchmark rates, which remain at historical lows. Any such unravelling of recent search-for-yield behaviour could prompt a sharp repricing of risk, which could be amplified by low market liquidity in key segments. Finally, some reversal of flows, including back towards emerging markets, could take place given relative value considerations following significant outflows. However, expectations of a macroeconomic slowdown in emerging market growth might limit the extent of these flows.

2.1 RISK PREMIA AND FRAGMENTATION IN EURO AREA MONEY MARKETS DECLINE AS THE INVESTOR BASE EXPANDS

Risk premia and, as a corollary, fragmentation in **euro area money markets** have declined, as activity and foreign investment have increased. The main repo indices and EONIA volumes indicate increased activity in unsecured and secured euro area money markets. It appears that the rating cycle is now stabilising or even improving for sovereigns and banks in the more vulnerable euro area countries. This has contributed to tighter spreads between rates on repurchase agreements, for example between those backed with bonds from countries which had not experienced significant stress (such as France) and those backed with bonds issued in countries that had (such as Italy). Large banks from more vulnerable euro area countries reported improved funding conditions in both secured and unsecured markets along three lines: *price* (lower funding rates), *volumes* (some banks almost doubled issuance compared with the same period of last year) and *tenors* (funding is being raised at longer maturities, typically 9 to 12 months). Reflecting increased risk appetite among foreign investors for euro area assets, the investor base for euro area money markets widened further to include more international participants, for example, US prime money market funds.

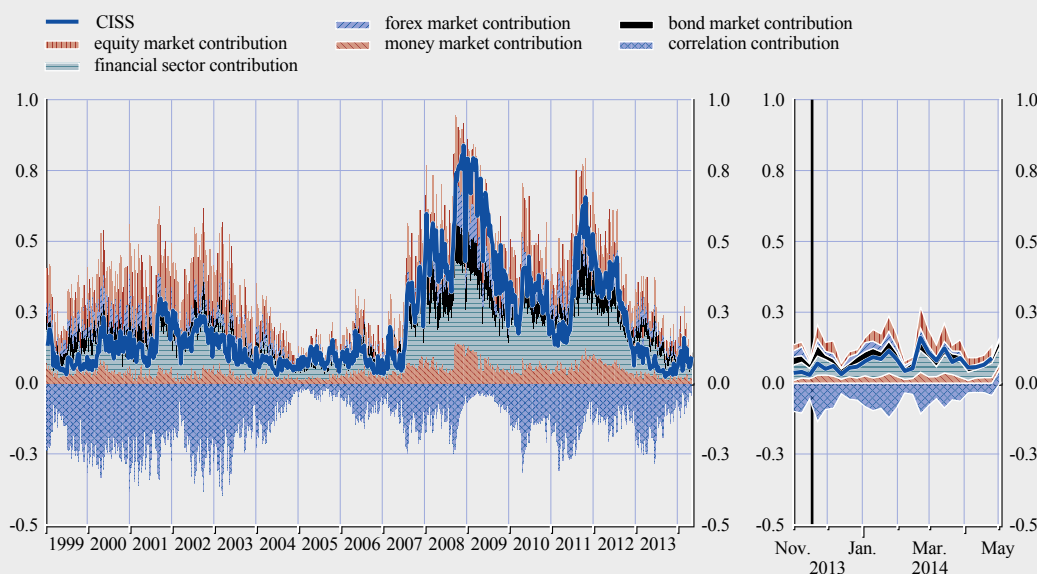
Conditions in euro area money markets proved resilient to a further decline in the euro area liquidity surplus and a rise in US money market rates, as both volatility and systemic liquidity stress remained at low levels despite these developments (see Chart 2.1 and Chart 2.2). Such resilience is largely due to the effectiveness of central bank actions, in particular forward guidance. Rates in US money markets increased slightly as the Federal Reserve announced a tapering of asset purchases in December. However, euro area money market rates, measured for example by EONIA forwards, remained either flat or inverted across the maturity spectrum largely owing to ECB actions, which included a rate cut in November 2013 and strong communication that the ECB would act to ensure that low inflation does not become too persistent. As a result, euro area rates decoupled further from developments in the United States (see Chart 2.3).

Fragmentation in euro area money markets has receded...

... and markets have become more resilient to US developments

Chart 2.1 Composite indicator of systemic stress for the euro area and contributions of its components

(Jan. 1999 – May 2014)



Sources: Bloomberg and ECB calculations.

Note: For further details, see Hollo, D., Kremer, M. and Lo Duca, M., "CISS – a composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, March 2012.

Short-lived bouts of volatility were observed around financial reporting periods

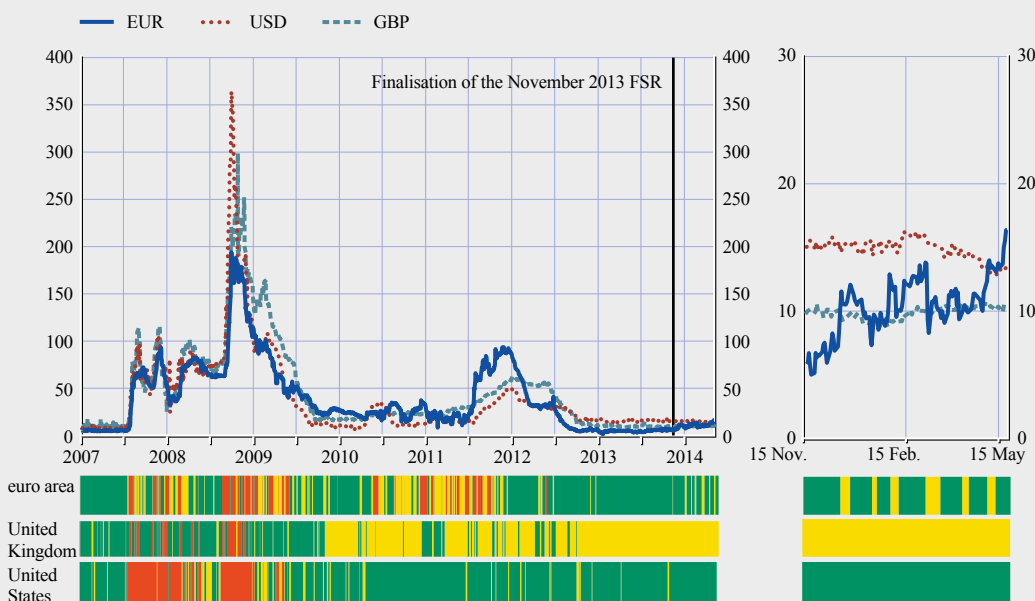
As banks reduced further their reliance on ECB refinancing operations, a steady decline in the liquidity surplus and some short-lived bouts of volatility were observed. Increased volatility was evident around year and quarter-end, a development that is consistent with bank efforts to fine-tune balance sheets ahead of financial reporting deadlines and also reflective of the December 2013 cut-off date for the ECB's comprehensive assessment. An accelerated pace of the repayment of longer-term refinancing operations (LTROs) was observed for certain banks in November and December as the year-end approached. Such behaviour appeared aimed at limiting any potential for a "stigma effect" associated with reliance on central bank funding (in particular LTRO funding) and it resulted in tighter liquidity conditions. The overnight reference rates were pushed close to the rate on the marginal lending facility, a rather typical pattern around the year-(or quarter)-end. In December the tightening impact on liquidity conditions from accelerated LTRO repayments was amplified by the tax collection season in several euro area countries, but also offset somewhat by increased recourse to other ECB refinancing operations. Further early repayments in 2014 resulted in the net liquidity originally injected in December 2011 and February 2012 through the two LTROs being fully repaid.

Liquidity may be affected by preparations for the LCR and increased scrutiny of money market rates...

Two regulatory initiatives have been increasingly impacting euro area money markets. First, preparations for the implementation of the liquidity coverage ratio (LCR) may be contributing to tighter prevailing liquidity conditions, through its increasing influence on banks' liquidity management practices. As the date (1 January 2015) for implementation of the LCR approaches, banks with better market access have been increasingly sourcing their liquidity needs at longer maturities (9 to 12 months). These banks seem to be structurally maintaining liquidity buffers instead of squaring cash balances overnight, which comes at a higher cost and may place upward pressure on short-term money market rates going forward. Banks for which market access is more difficult and LCR ratios are low are increasing recourse to new products (for example, call accounts or puttable floating rate notes, both of which have a 32-day notice period), which have a relatively

Chart 2.2 Spreads between unsecured interbank lending and overnight index swap rates

(Jan. 2007 – May 2014; basis points; three-month maturities)



Sources: Bloomberg and ECB calculations.

Notes: Red indicates rising, yellow moderating and green falling pressure in the respective money markets. For more details, see Box 4 entitled "Assessing stress in interbank money markets and the role of unconventional monetary policy measures", in ECB, *Financial Stability Review*, June 2012.

high cost and do not offer much stability due to their very short-term nature. Second, money market reference rates, built either on transactions (EONIA) or on contributions (EURIBOR), have been under public scrutiny after the recent issues surrounding the LIBOR. The departure of 17 banks from the EURIBOR panel¹ and 8 banks from the EONIA panel² has exerted a limited impact on markets thus far, though it could become a more systemically relevant issue if more banks were to stop contributing to these rates, which are used in a large number of contracts.

The outcome of a European Parliamentary vote on proposed changes to the regulatory treatment of money market funds (MMFs), which has been postponed until after the May elections, could also have important consequences for money markets. It is proposed that MMFs either adopt a variable net asset value in order to show

Chart 2.3 One-year forward overnight index swap rates in one year in the euro area and the United States

(May 2013 – May 2014; percentages)



Sources: Bloomberg and ECB calculations.

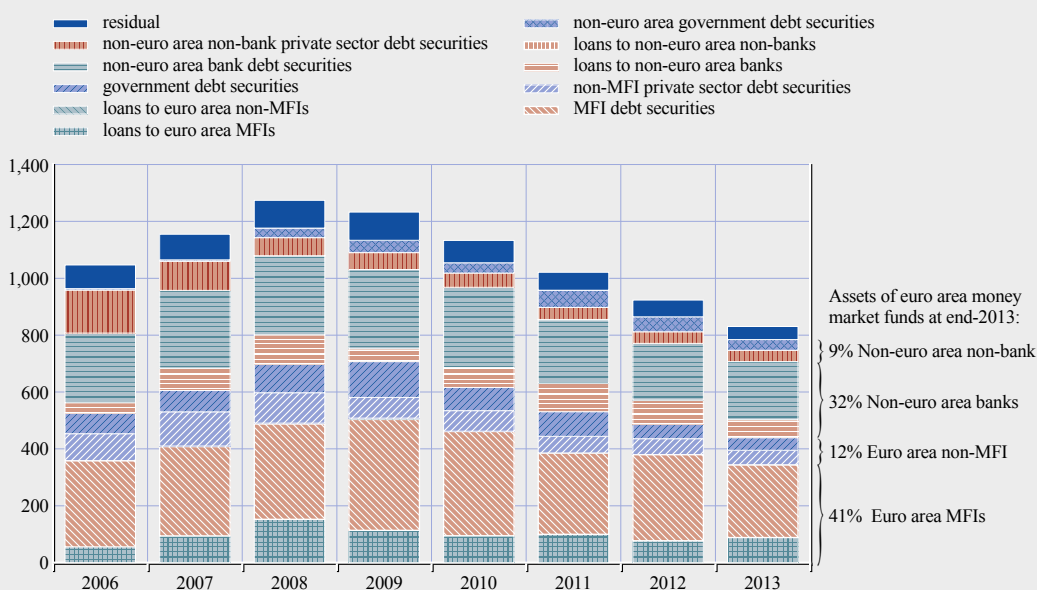
... as well as the outcome of a European Parliamentary vote on the regulatory treatment of MMFs

1 Erste, Raiffeisen, KBC, Crédit Industriel et Commercial, Landesbank Berlin, Bayerische Landesbank, Deka Bank, Norddeutsche Landesbank, Landesbank Baden-Württemberg, Landesbank Hessen-Thüringen, UBI Banca, Bank of Ireland, Allied Irish Bank, Rabobank, Svenska Handelsbanken, UBS and Citibank.

2 Raiffeisen, Landesbank Berlin, Allied Irish Bank, Rabobank, Danske Bank, Svenska Handelsbanken, UBS and Citibank.

Chart 2.4 Assets of euro area money market funds

(2006 – 2013; EUR billions)



Sources: ECB and ECB calculations.

mark-to-market value fluctuations to their customers or set aside capital buffers equivalent to 3% of assets in order to absorb sudden outflows. Funds must also follow stricter investment rules whereby daily and weekly maturing instruments should comprise at least 10% and 20% of investments respectively, and MMFs are limited as regards the types of activity they can engage in (for example, securities lending is not allowed). Overall duration, concentration limits and reporting constraints would be more stringent in order to improve the resilience and transparency of the MMFs' activities. Market participants argue that the proposed changes would imply a further contraction of the MMF industry, at a time when MMFs are already being negatively affected by the low interest rate environment. Euro area money market funds play an important role in money markets and are estimated to hold 25% of all short-term debt securities issued in the euro area. They are highly interconnected with both euro area and non-euro area banks³; claims on banks account for almost three-quarters of their assets, while euro area monetary financial institutions (MFIs) account for 30% of their investor base (see Chart 2.4). While an outflow of investment from MMFs could result in increased funding for banks owing to their substitutability, the strong participation of non-euro area investors (who account for 43% of the investor base of euro area MMFs) raises some concerns. However, the assets of institutions currently classified as euro area MMFs have declined by 25% (€314 billion) from their peak in the first quarter of 2009 to the first quarter of 2014, without any broad-based consequences for financial stability.

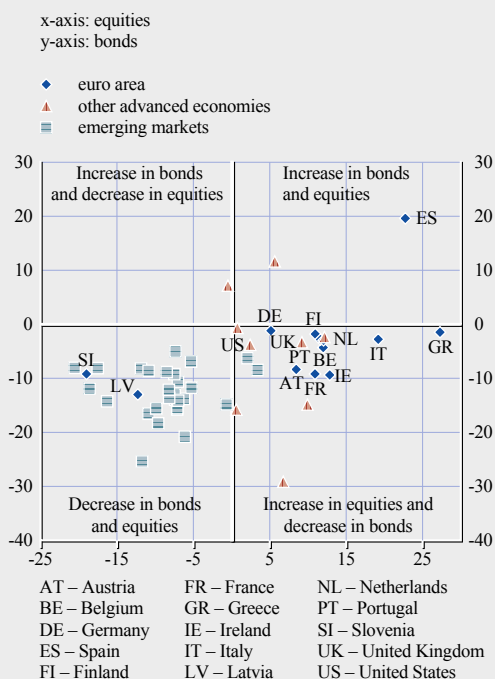
2.2 FURTHER COMPRESSION OF RISK PREMIA AS SEARCH FOR YIELD PERSISTS WITHIN ADVANCED MARKETS

Financial markets have witnessed a further compression of risk premia that has been pervasive across asset classes within advanced economies. Since end-May 2013 global investors appear to

3 The majority of European money market funds are bank sponsored.

Chart 2.5 Cumulated equity and bond portfolio flows

(22 May 2013 – 16 May 2014; percentage of total assets invested as at 22 May 2013)

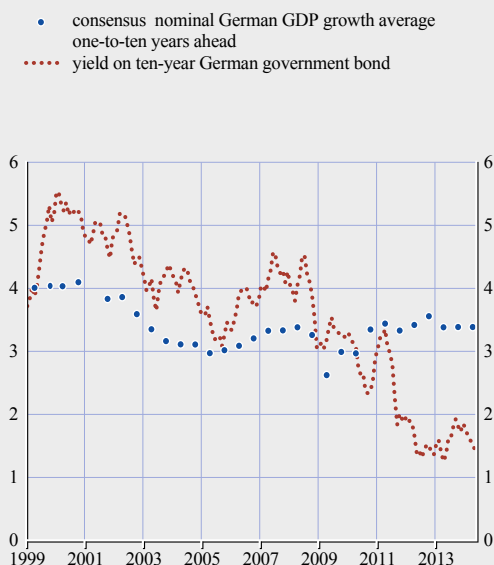


Sources: EPFR and ECB calculations.

Note: Investment in high-yield funds continued to increase, suggesting that outflows were from investment-grade funds.

Chart 2.6 Developments in German bond yields and consensus GDP forecasts

(Jan. 1999 – Apr. 2014; percentages)



Sources: European Commission, Bloomberg, ECB and ECB calculations.

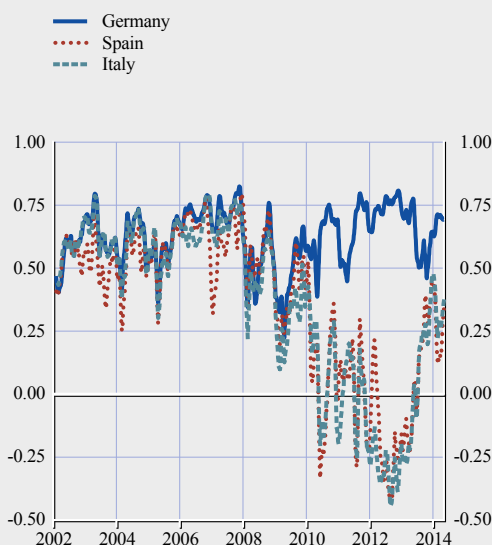
have shifted down the credit quality spectrum, increasingly into high-yield bonds and equities (see Chart 4 in the Overview and Chart 2.5). Developments were muted in emerging markets where outflows from both equities and bonds were recorded, while corporate bond issuance remained at elevated levels. The reduction in risk premia has been quite pronounced in the euro area owing to high foreign demand and also some rebalancing by euro area funds, which has resulted in a decline in fragmentation. From mid-2013 to March 2014, euro area investment funds (excluding MMFs) grew by 6% (based on shares/units outstanding), an expansion largely driven by significant increases in equity and mixed funds, even though growth in bond funds recovered in the first quarter of 2014. At the same time, these funds have been rebalancing their portfolios towards euro area securities, in particular those issued by the non-MFI private sector. While further risk-taking is supported by improved fundamentals, evidence of potential imbalances in some market segments is growing and investor behaviour is consistent with an intense search for yield, the sharp unwinding of which could have broad-based consequences for global financial markets.

Yields on higher-rated **benchmark global government bonds** remain at historical lows. Some volatility has nonetheless been evident in global benchmark yields since the end of last year. This has reflected changing safe-haven flows as a steadily strengthening US economy contrasted with intermittent tensions in several emerging markets related to a combination of concern regarding growth fundamentals and geopolitical tensions. Within the euro area, market expectations of further ECB action placed downward pressure on euro area rates. As a result, the yield on the ten-year Bund remains below levels implied by growth expectations (see Chart 2.6).

Yet yields on benchmark government bonds remain at historical lows

Chart 2.7 Correlations between yields on ten-year government bonds in the US and selected euro area countries

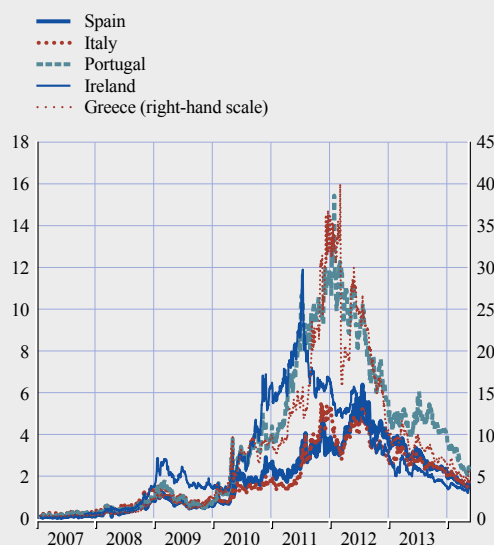
(Jan. 2002 – May 2014; correlation coefficient)



Sources: Thomson Reuters and ECB calculations.
Note: Correlations of ten-year instruments, extracted from dynamic conditional correlation (DCC) models.

Chart 2.8 Spreads between selected ten-year euro area government bonds and the German Bund

(Jan. 2007 – May 2014; percentages)



Sources: Bloomberg and ECB calculations.

In this environment, movements in benchmark euro area government bonds and US Treasuries have decoupled further – though correlations remain elevated (see Chart 2.7). A decoupling of yields on the ten-year US Treasury and the German Bund observed since July reflects not only ECB forward guidance, but also market participants' diverging expectations regarding the future path of monetary policy for the regions (see Chart 2.3). Increasing expectations of ECB policy easing contrasted with announcements by the Federal Open Market Committee (FOMC) that they would taper asset purchases. As a result, the nominal interest rate differential between the Bund and the ten-year US Treasury fell further below its long-term average to a level last observed in 2005 when the FOMC increased interest rates on 12 consecutive occasions, while ECB rates were unchanged. Notwithstanding this growing dichotomy, correlations of the benchmark yields on either side of the Atlantic remain above their historical averages, suggesting the potential continuation of an observed historical regularity whereby changes in US Treasuries tend to eventually feed into most high-rated government bonds. Indeed, while prevailing monetary policy settings in major economies such as the euro area, the United Kingdom and Japan provide a strong anchor for expectations regarding short-term interest rates, yields on longer-dated bonds remain vulnerable to an increase in US term premia.

Risk premia in euro area sovereign markets have fallen to multi-year lows...

Intra-euro area spreads and yields on **lower-rated euro area government bonds** have fallen – sharply in many cases – to multi-year and, in certain cases, record lows. At a ten-year maturity, Irish, Spanish and Italian government bond yields have fallen to their lowest level in euro area history, while yields on Greek and Portuguese bonds have fallen to pre-crisis levels. Spreads on yields of ten-year bonds over the Bund have fallen to four-year lows for Portugal, Ireland and Greece and three-year lows for Spain and Italy (see Chart 2.8). Sovereign issuers are taking advantage of benign market conditions to lengthen the average maturity of new issuances (Spain, Portugal and Italy); to front-load planned

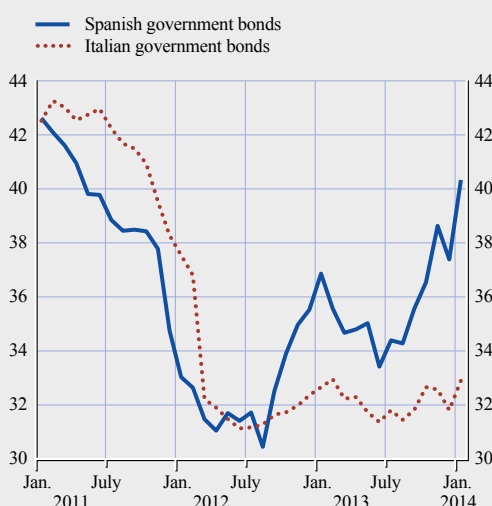
issuances for 2014 (Ireland and Portugal); and to return to the market (Greece, Cyprus and Slovenia) and regular auctions (Portugal).

This improvement in market conditions for lower-rated bonds reflects significant growth in the non-domestic investor base, the strength of which has varied across maturity spectrums and national markets. The compression in lower-rated government bond yields has been more pronounced at shorter (five-year and below) maturities where non-domestic demand – in particular from investors located in other European countries and the United States – is reported to have been largely concentrated. Increased demand was clearly evident at primary auctions where bid-to-cover ratios and order numbers reached record highs, while auction tails remained low. National authorities report a growing presence of foreign investors in secondary markets but activity has varied across national markets. Strong demand for Spanish government bonds was clearly evident in a sharp increase in the share of non-resident holdings, which stands at its highest level since May 2011 (see Chart 2.9).⁴ The increase in the share of non-resident holdings of Italian government bonds has been more muted and, according to the latest data for January 2014, is low compared with levels observed in 2011. This is perhaps surprising given that Italian MFIs disposed of €21 billion worth of government bonds during December 2013 and January 2014. However, the latest data for the fourth quarter of 2013 show a significant, €30 billion, increase in domestic Italian insurance corporations and pension funds' holdings of Italian government debt securities.

Along with a rising correlation with global benchmark bonds, yields on lower-rated euro area government bonds have shown an increased resilience to increases in global risk aversion (see Chart 2.10). Yields on ten-year bonds maintained their downward trajectory, despite a short-lived increase in global risk aversion in early 2014. Such a development is consistent

Chart 2.9 Share of Italian and Spanish government bonds held by non-resident investors

(Jan. 2011 – Jan. 2014; percentages)

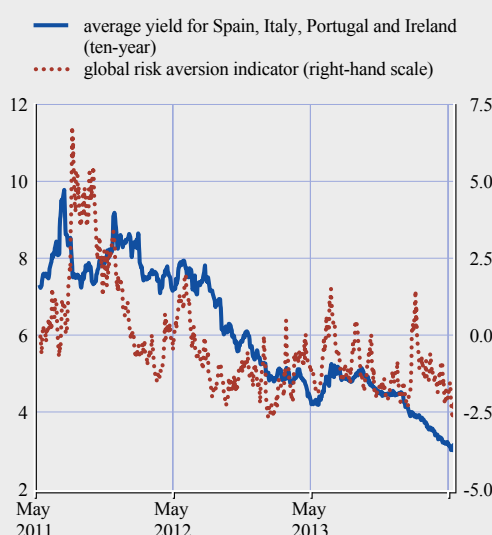


Sources: National treasuries and ECB calculations.

... largely owing to strengthening of foreign demand

Chart 2.10 Global risk aversion and average yield on Spanish, Italian, Portuguese and Irish ten-year government bonds

(May 2011 – May 2014; percentages)



Sources: Bloomberg, Bank of America Merrill Lynch, UBS, Commerzbank and ECB calculations.

Notes: The global risk aversion indicator is constructed as the first principal component of five currently available risk aversion indicators. A rise in the indicator denotes an increase of risk aversion. For further details about the methodology used, see "Measuring investors' risk appetite", *Financial Stability Review*, ECB, June 2007.

Lower-rated sovereign bonds appear more resilient to rising global risk aversion...

⁴ The share of foreign residents' holdings of Spanish government bonds rose to its highest level (39%) since August 2011.

...but improved sentiment largely hinges on the evolution of a fragile economic recovery and search-for-yield behaviour

with improving risk perception, which is supported by declining credit default swap (CDS) spreads and ratings upgrades, and driven by improved macro fundamentals and significant fiscal and structural adjustments. However, it perhaps also reflects the intensity of the search for yield within euro area markets, as well as some acquisitions of government debt securities by Italian and Spanish banks in early 2014. Growing correlations across euro area bond markets are explored in more detail in Box 4.

While the significant fiscal and structural adjustments undertaken at euro area and national level should ensure that spreads in euro area government bond markets remain well below crisis highs, four key factors could threaten current low levels of risk premia. First, continued confidence in euro area markets hinges to a large extent on the sustainability of a fragile economic recovery, where risks remain largely on the downside (see Section 1). Second, rising geopolitical tensions and mounting concerns regarding vulnerabilities in China threaten not only the euro area recovery but also robust investor demand for risky assets, both of which have been key drivers of recent positive developments. Third, investor appetite for the government bonds of more vulnerable euro area countries could also be affected by any fallout from European and national elections, which will serve as a barometer for market participants as regards the political will to further tackle structural and fiscal challenges. While the reduction in yields has improved debt sustainability prospects for the more vulnerable countries, high public debt levels continue to present challenges. Finally, the persistence of bond market improvements will also depend, to some extent, on the appetite for rebalancing portfolios away from emerging markets, which is tightly linked to prevailing emerging market conditions. Strong inflows to euro area bond markets since mid-2013 have coincided with the longest streak of outflows from emerging markets since 2004, which receded in March 2014. Despite expectations of a slowdown in growth in emerging market economies, capital inflows have returned and past experience suggests that emerging market assets tend to perform quite well in periods following a substantial outflow which then results in some rebalancing of portfolios back towards the region, an outcome that could have some implications for euro area markets.

Box 4

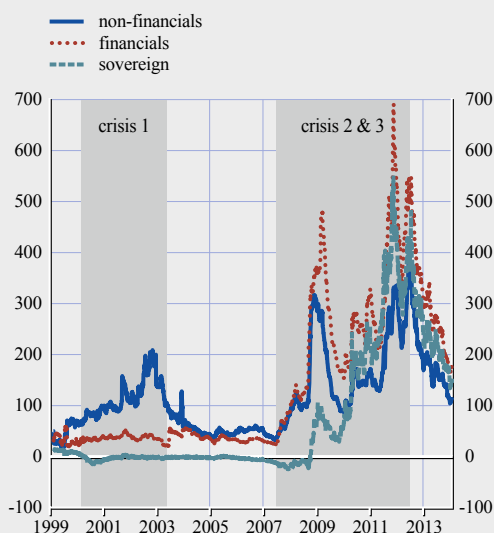
CO-MOVEMENTS IN EURO AREA BOND MARKET INDICES

The improvement experienced in financial conditions in euro area bond markets since mid-2012 has led to significant declines in sovereign and corporate bond yields, particularly in vulnerable countries. The lower financial stress since mid-2012 likely stems from a normalisation of conditions as unjustified fears of tail risks in the euro area dissipated. Such a co-movement, however, may also conceal an excessive search for yield, which – from a financial stability perspective – could make bond markets highly vulnerable to a repricing of risk stemming from the still fragile economic recovery and a normalisation of US monetary policy. To assess the potential relevance of those risks, this box puts those high correlations into historical perspective, comparing them with previous crisis and recovery periods and with developments in euro area high-rated bonds.

Such co-movement of sovereign and corporate bond indices in vulnerable countries has been witnessed in the past, notably during other periods of market stress. Developments in asset swap

Chart A Sovereign and corporate bond indices in Greece, Ireland, Italy, Spain and Portugal

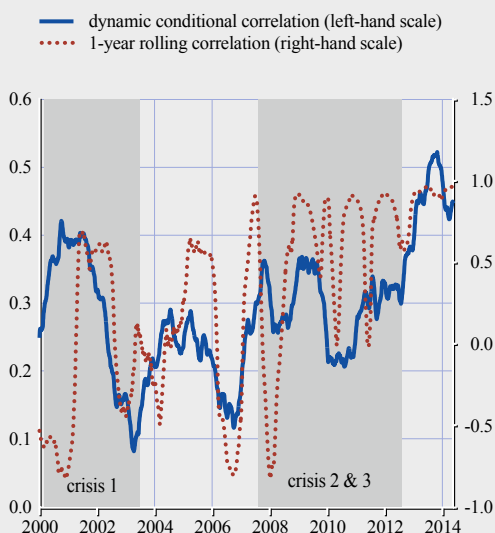
(Jan. 1999 – May 2014; basis points; asset swap spreads)



Sources: Bloomberg and Bank of America Merrill Lynch.
Note: The bond indices comprise securities issued in Greece, Ireland, Italy, Portugal and Spain, but the non-financial and financial bond indices include only issuers with an investment-grade rating (currently mainly Italian and Spanish issuers).

Chart B Correlations between non-financial corporate and sovereign bonds in vulnerable countries

(Jan. 2000 – May 2014)



Sources: Bloomberg, Bank of America Merrill Lynch and ECB calculations.

Note: The peripheral bond indices comprise securities issued in Greece, Ireland, Italy, Portugal and Spain, but the non-financial and financial bond indices include only issuers with an investment-grade rating (currently mainly Italian and Spanish issuers).

spreads for Bank of America Merrill Lynch euro indices¹ of sovereign bonds and financial as well as non-financial corporate bonds suggest at least three periods of significant stress since 1999 (see Chart A): (i) the dot-com bubble (March 2000-June 2003); (ii) the sub-prime mortgage/early stage of the global financial crisis (August 2007-December 2009); and (iii) the euro area sovereign debt crisis (January 2010-August 2012).

With these periods in mind, co-movement between sovereign and corporate bond indices can be assessed by means of pair-wise rolling correlations over a one-year window in different periods (see table). Additional robustness for the volatility of the series is provided by the calculation of dynamic conditional correlations (DCC) using a multivariate model of sovereign and corporate bond indices and allowing for GARCH effects (see Chart B). While differences in duration, rating distribution and country composition between the selected indices might affect the results, they are nonetheless illustrative.

Correlations between sovereign and corporate bonds in vulnerable countries turned strongly negative at the beginning of the global financial crisis, when euro area sovereign bonds were considered a risk-free asset. As the financial crisis deepened and led to the euro area sovereign debt crisis, the rolling one-year correlation reversed to positive territory and moved increasingly

¹ Merrill Lynch euro bond indices include EUR-denominated securities issued in the Eurobond or euro member domestic markets, in some cases by issuers whose country of risk is outside the euro area. The peripheral index includes securities issued by issuers from Greece, Ireland, Italy, Spain and Portugal. The periphery sovereign index includes all rating categories, but the periphery corporate indices include only investment-grade ratings, therefore currently consisting mainly of Italian and Spanish issuers. The non-periphery indices include EUR-denominated securities (with issuers inside or outside the euro area) with the exception of securities issued by issuers from the periphery countries listed above.

Correlations between corporate (financial and non-financial) and sovereign bonds in different periods

Correlations Time period	Non-periphery		Periphery	
	Financial	Non-financial	Financial	Non-financial
Jan. 1999 – May 2014	0.22	0.12	0.89	0.76
Jan. 1999 – Aug. 2007: before crisis 2 & 3	0.44	0.24	0.16	-0.09
Mar. 2000 – June 2003: crisis 1	0.76	0.75	0.27	0.36
Aug. 2007 – Dec. 2009: crisis 2	0.57	0.45	0.88	0.76
Jan. 2010 – Aug. 2012: crisis 3	0.69	0.54	0.93	0.91
Aug. 2012 – Jan. 2014: after OMT announcement	0.34	0.68	0.98	0.98

Sources: Bloomberg and Bank of America Merrill Lynch.

Note: The darker shades of green in the table indicate a higher positive correlation over the given period.

close to 1, reflecting the widening of asset swap spreads for bonds in vulnerable countries, but over the debt crisis period sovereign bond spreads widened in line with corporate bond spreads, which reinforced the correlations. After the announcement by the ECB of Outright Monetary Transactions (OMTs), the correlations increased even further, but such a strong co-movement can be attributed to the widespread asset swap spread tightening amid improved market sentiment and, more recently, search-for-yield pressure.

By contrast, in the case of bond indices for highly rated euro area sovereigns, the correlations were the strongest during the dot-com bubble, although the asset swap spreads moved in a narrower range than in the early stages of the sub-prime mortgage crisis and euro area sovereign debt crisis. At the same time, in vulnerable countries, the correlations were the lowest, indicating that the behaviour of vulnerable and highly rated bond markets can be quite different in periods of market turbulence (see the table).²

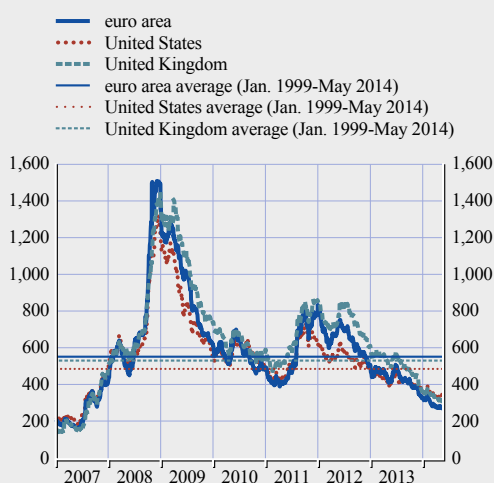
It should also be taken into account that the link between financial and non-financial corporations (although not shown in the table), both for vulnerable and other countries, has in general been strong, but also strengthened even further during the euro area sovereign debt crisis and the period after the OMT announcement. This tighter link may be influenced by the bank deleveraging process leading to fewer bank loans to non-financial corporations, which has made the latter more dependent on funding from markets through bond issuance and therefore on overall bond market conditions. This effect may be particularly strong for vulnerable countries recently as market funding conditions have improved significantly both for sovereigns and for corporations in those countries.

To sum up, the link between the bond yields of sovereigns and financial and non-financial corporations may be varying over time, but experience since the inception of EMU suggests that they tend to co-move strongly during market tensions and recovery periods. In the case of bond indices for vulnerable euro area countries, it seems that crisis periods adversely affecting sovereigns resulted in increasing correlations between sovereign and corporate bonds. The currently historically high correlations in this regard can be seen as part of an empirical regularity between sovereign and corporate bonds, alongside a gradual normalisation in bond market conditions. At the same time, the extent to which positive market sentiment may be leading to an excessive compression of risk needs to be monitored closely, given the potential for systemic risk resulting from a correlated unwinding of related flows.

² The rather low correlations during the sub-prime mortgage crisis and the euro area sovereign debt crisis could be affected by the composition of the periphery corporate bond indices, which include not only euro area issuers but also issuers from outside the euro area, which may not have been as greatly affected by the crisis as their euro area counterparts or perhaps even benefited from it (for this reason, some caution should be exercised in interpreting the non-peripheral data).

Chart 2.11 Global high-yield corporate credit spreads

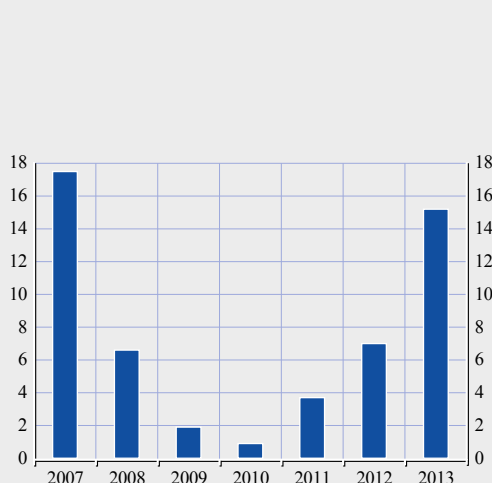
(Jan. 2007 – May 2014; basis points)



Source: Bank of America Merrill Lynch.

Chart 2.12 Issuance of payment-in-kind toggles by firms located in the United States

(2007 – 2013; USD billions)



Source: IMF.

Risk premia have also continued to decline in **global corporate credit markets**, with high-yield corporate spreads falling to levels last observed in October 2007, and the decline has been relatively more pronounced for the euro area (see Chart 2.11). The more significant decline for euro area corporates in recent months has stemmed from strong foreign demand for euro area debt securities since end-June 2013 as well as a rebalancing by a growing euro area investment funds industry towards domestic assets. Moreover, much of this demand is likely to have concentrated on the high-yield segment: inflows to high-yield funds (including exchange-traded funds) have strengthened. A broad-based reduction in risk premia was also evident within the high-yield segment as the differential between spreads on BBB-rated and C-rated corporate indices has compressed to pre-crisis levels. Issuance of high-yield corporate bonds has remained strong this year as a slight slowdown in non-financial issuance was more than offset by increased issuance of subordinated debt securities and contingent convertible bonds (CoCos) by euro area banks (see Section 3).

Spreads on high-yield global corporate bonds have fallen to pre-crisis levels...

As spreads on high-yield bonds have compressed to pre-crisis levels, growth in **products offering a higher yield but lower protection for lenders** has strengthened, in particular within US markets. The renaissance of euro area corporate hybrids that emerged in 2013 has continued unabated by a change in the treatment of high-yield bonds by Moody's last July, which prompted some, albeit limited, early redemptions.⁵ Quarterly issuance of hybrid bonds by euro area non-financial firms reached record levels (€15 billion) in the first quarter of 2014. Increased appetite for leveraged instruments with weaker underwriting standards has been met with strong issuance in US markets, while developments in European markets have been more subdued. The outstanding amount of so-called US "covenant-lite" loans trebled in 2013 (to USD 280 billion), while the leveraged loan market doubled in size. Within the US high-yield segment, issuance of "payment-in-kind toggles"⁶ has reached pre-crisis levels

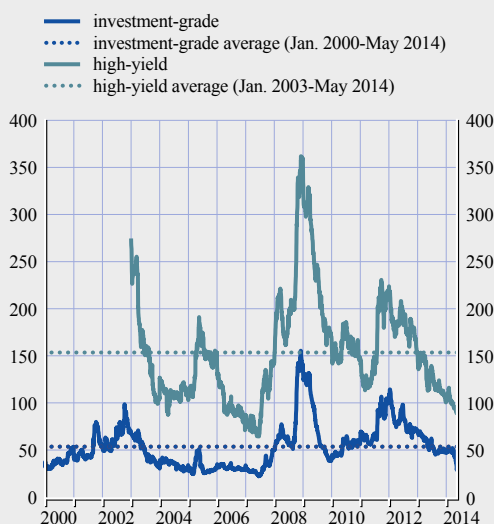
... amid signs of a decline in underwriting standards

⁵ Last July, the rating agency said that hybrids from issuers that it rated as "sub-investment grade", or junk, would no longer qualify for the 50% equity treatment.

⁶ A PIK (payment-in-kind) loan is a type of loan which typically does not provide for any cash flows from the borrower to the lender between the drawdown date and the maturity or refinancing date, not even interest or parts thereof.

Chart 2.13 European non-financial corporate bond spreads relative to leverage

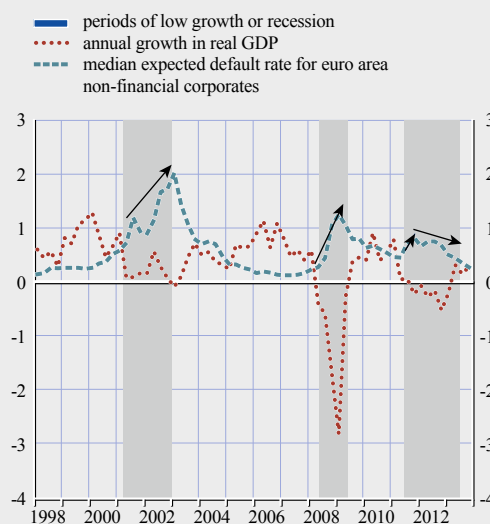
(Jan. 2000 – May 2014; basis points per unit of leverage)



Sources: Bloomberg, Markit, company data and Morgan Stanley Research.

Chart 2.14 Expected default rates for euro area non-financial corporations and real euro area GDP growth

(Q1 1998 – Q4 2013; percentages)



Sources: Moody's KMV, European Commission and ECB calculations.

Low levels of volatility and corporate defaults could be tested by a normalisation of monetary policy

(see Chart 2.12). Against a backdrop of weakening credit standards in the US corporate bond market, Federal Reserve flow-of-funds data indicate that foreign net purchases of US corporate debt securities reached a six-year high (of USD 213 billion) in 2013. Developments were more muted in Europe. Issuance of European leveraged loans doubled in 2013, but from a low base (from €35 billion in 2012 to €65 billion in 2013). Issuance of covenant-lite loans rose to €8 billion in 2013 – a level that exceeds the previous peak of €7 billion in 2007 – and has remained robust in 2014.

The willingness of investors to take on riskier corporate exposures and more leverage per unit of spread may be somewhat justified by low levels of corporate default and measures of implied bond market volatility, the sustainability of which will be tested by the eventual normalisation of global monetary policy settings. Since the middle of last year spreads on European and US corporates have become increasingly disconnected from leverage. Within European markets, the spread that high-yield investors are willing to accept per unit of leverage has fallen well below its 11-year average (see Chart 2.13). At the same time, measures of implied market volatility and expected corporate default rates have fallen close to pre-crisis levels. Worryingly, past experience suggests that volatility tends to hit a nadir when imbalances are building (see Box 5 on measures of risk aversion and uncertainty). Adding to this concern, a persistent decline in expected euro area corporate default rates during the recent economic recession may suggest that low spreads may be driving low defaults by keeping troubled borrowers afloat (see Chart 2.14). If such a process is under way, its sustainability will be tested in an environment of rising rates where market risk could quickly translate into credit risk.

Box 5

DISTINGUISHING RISK AVERSION FROM UNCERTAINTY

The financial crisis has seen an unprecedented increase in financial market volatility and in risk premia for a wide range of assets. Such increases can be driven both by changes in the level of uncertainty (or risk) in the system and by changes in the way investors “tolerate” (or dislike) uncertainty (investors’ risk aversion). An ability to distinguish between these two underlying drivers can help considerably in financial stability monitoring, as there are structural links between risk aversion and uncertainty on one hand and macro-financial developments on the other hand.¹ However, the distinction between the two in empirical work is often blurred when some common volatility indicators are used as their proxies.

One approach to obtain individual estimates of these two phenomena is to use a decomposition of volatility indices such as VIX and VSTOXX, which are derived from option prices and capture both expected stock market volatility (uncertainty) and risk aversion.² Uncertainty can be estimated with established techniques for measuring expected stock market variance. Risk aversion (the so-called variance premium) can then be obtained as the difference between the (squared) VIX/VSTOXX (which captures implied market variance) and the expected stock market variance.

The results of such an approach are in the chart below, which displays the evolution of risk aversion and uncertainty indicators for the United States and the euro area. Three periods of market turbulence are particularly noteworthy: the aftermath of the dot-com bubble, the collapse of Lehman Brothers, and the euro area sovereign debt crisis. Interestingly, despite the potential for region-specific factors, estimated measures of risk aversion and uncertainty for the United States and the euro area appear generally quite closely correlated. The benefit of these measures, however, goes beyond capturing periods of market turbulence. For example, recent research shows that the risk aversion measure is a reliable predictor of stock returns,³ with low risk aversion providing a signal of “booming” asset prices and compressed risk premia which lied at the root of the global financial crisis. Indeed, between 2005 and mid-2007, risk aversion for both the euro area and the United States touched historical lows.

Although risk aversion and uncertainty tend to co-move, there are some notable periods in which they differ. As could be expected, movements in these measures for the United States were more marked following the collapse of Lehman Brothers, while more volatility was evident for the euro area measures during the sovereign debt crisis. For example, uncertainty increased much more relative to risk aversion at the end of the 2008 financial crisis, in both the United States and in the euro area. Conversely, in the United States, risk aversion increased much more than uncertainty in relation to the Russian crisis in 1998 and to the US sovereign debt rating downgrade in summer 2011, which had much more limited financial stability and macroeconomic implications. Such developments mirror the results of past research⁴ which has shown that uncertainty is a better predictor of financial instability and business cycles. Interestingly,

1 See, e.g., Bloom, N., “The Impact of Uncertainty Shocks”, *Econometrica*, Vol. 77 (3), 2009, pp. 623-685, and Bollerslev, T., Tauchen, G. and Zhou, H., “Expected Stock Returns and Variance Risk Premia”, *Review of Financial Studies*, Vol. 22 (11), 2009, pp. 4463-4492.

2 See Bekaert, G., Hoerova, M. and Lo Duca, M., “Risk, Uncertainty and Monetary Policy”, *Journal of Monetary Economics*, Vol. 60 (7), 2013, pp. 771-788, and Bekaert, G. and Hoerova, M., “The VIX, the Variance Premium and Stock Market Volatility”, NBER Working Paper No 18995, National Bureau of Economic Research, 2013.

3 See, e.g., Bollerslev, T., Tauchen, G. and Zhou, H. (2009), cited above.

4 Bekaert, G. and Hoerova, M. (2013), cited above.

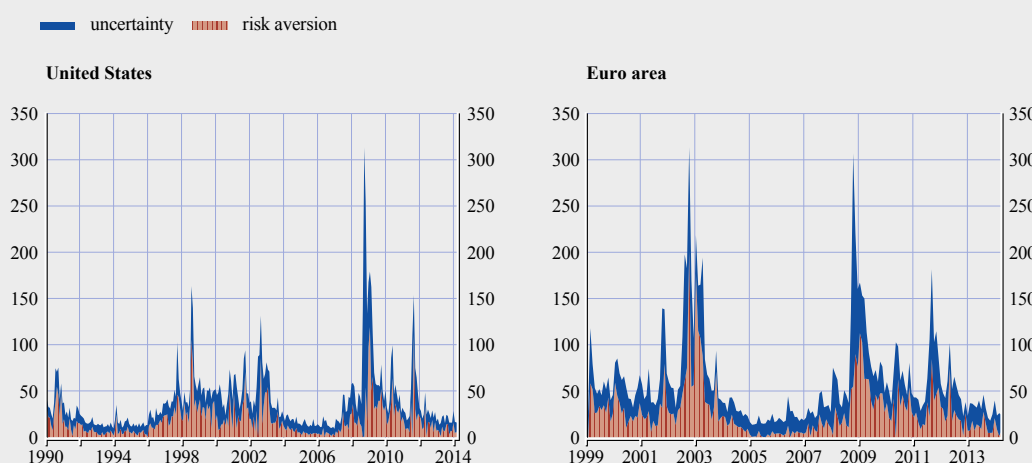
in the euro area, risk aversion increased more than uncertainty in late 2011/early 2012, in relation to rising financial tensions in Italy and Spain.

Currently, estimates of both risk aversion and uncertainty are close to historical lows in both the euro area and the United States. This could be related to abundant liquidity in the context of macroeconomic policy accommodation at the global level, and could point to potential underpricing of risks in global financial markets. A sharp adjustment in these measures, in particular the uncertainty measure, could have important financial stability consequences. According to estimates based on a predictive regression of the CISS indicator of systemic stress⁵ on risk aversion and uncertainty measures for the United States (1990-2010 sample), a shock of 100 percentage points to uncertainty could increase the CISS indicator by 0.2 variance units after one year (the CISS ranges between 0 and 1), with a concomitant negative impact on euro area financial stability.⁶ Well-communicated and predictable monetary policy has an important role to play in attenuating the scope for spikes in risk aversion and uncertainty. In this context, it is worth noting that changing monetary policy expectations in the United States since May 2013 have not affected the end-of-month measures of risk aversion and uncertainty for the euro area or the United States. Likewise, geopolitical tensions in Ukraine and Russia have contrasted with relative stability in estimated uncertainty so far.

In sum, the presented decomposition of stock market volatility into a risk aversion and an uncertainty component appears to provide useful information on financial market conditions relevant for financial stability, with the risk aversion component more relevant for understanding stock price developments, and the uncertainty component more tightly linked to past episodes of financial instability.

Risk aversion and uncertainty

(Jan. 1990 – Apr. 2014; squared percentage points)



Sources: Thomson Reuters Datastream and ECB calculations.

Notes: Decomposition of the (squared) VIX and VSTOXX indices into risk aversion and uncertainty. Risk aversion and uncertainty are expressed in squared percentages; the sum of risk aversion and uncertainty is equal to the squared VIX/VSTOXX index.

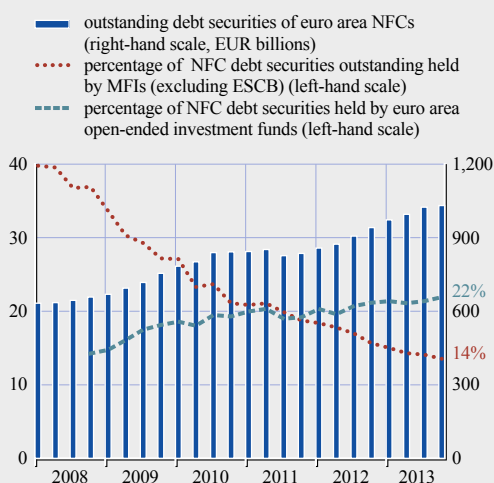
⁵ Hollo, D., Kremer, M. and Lo Duca, M., "The CISS – A composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, March 2012.

⁶ Bekaert, G. and Hoerova, M. (2013), cited above.

Corporate credit markets remain susceptible to **liquidity risk** amplification. Over the crisis period there has been an important shift within the investor base of the corporate credit market: banks have become less involved, while investment vehicles vulnerable to redemption risk have become more entrenched. The share of euro area banks' holdings of non-financial corporate debt has fallen from 40% of the outstanding stock of these bonds in September 2007 to 13% by February 2014, while the share of open-ended euro area investment funds (arguably more vulnerable to redemption risk) has risen from 9% in December 2008 to 21% in February 2014.⁷ In the United States, primary dealer inventories of corporate bonds have fallen to 20% of their 2007 level, and the share of corporate bonds held by households, mutual funds and ETFs now exceeds that of traditional investors (such as insurance companies and pension funds). These developments have important consequences for market liquidity. The decline in bank inventories reflects a reduction in market-making as banks are less willing to commit capital to trading activities (see Chart 2.15).

Chart 2.15 Outstanding debt securities issued by euro area non-financial corporations and share held by MFIs and open-ended euro area investment funds

(Q1 2008 – Q4 2013)

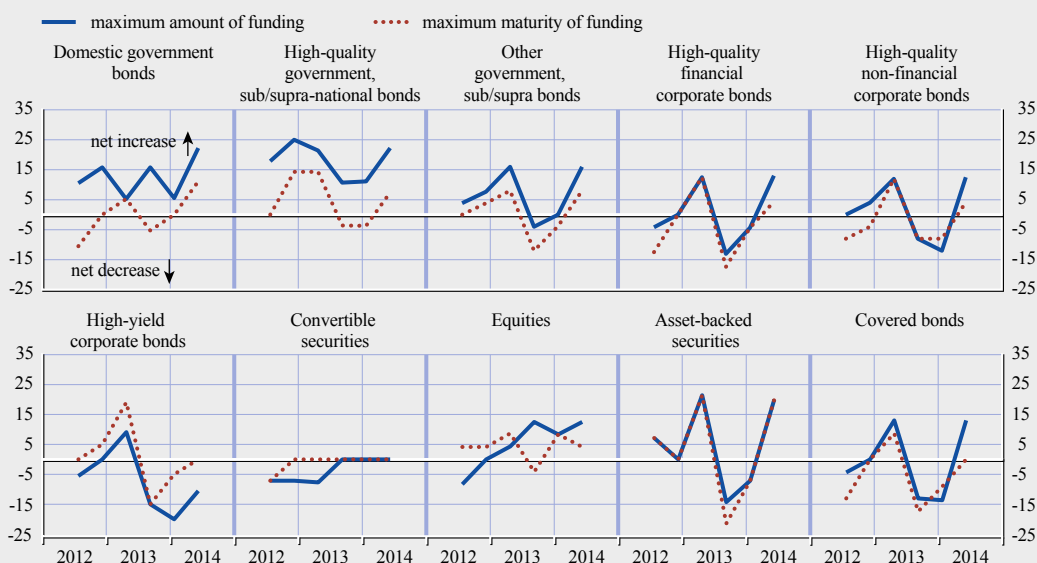


Sources: ECB and ECB calculations.

Shocks to corporate credit markets could be amplified by rising liquidity risks...

Chart 2.16 Changes in terms for secured funding by collateral type

(Q4 2012 – Q1 2014; net percentage of survey respondents)



Source: ECB.

Note: The net percentage is defined as the difference between the percentage of respondents reporting "increased somewhat" or "increased considerably" and those reporting "decreased somewhat" or "decreased considerably".

⁷ Open-ended investment funds are investment funds, the units or shares of which are, at the request of the holders, repurchased or redeemed directly or indirectly out of the undertaking's assets.

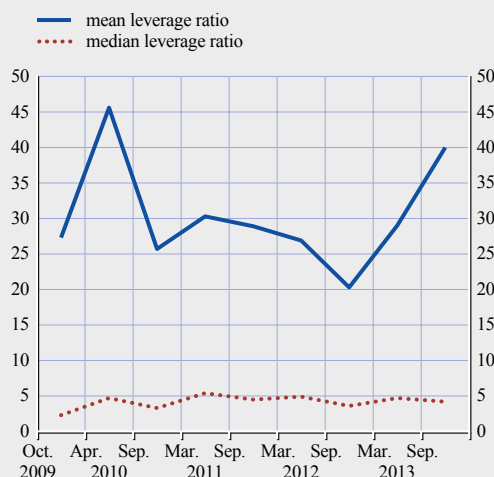
... as banks withdraw from market-making activities

Liquidity has fallen as a result, with concomitant implications in the form of reduced turnover, smaller trades and a strong focus on new issues. Participants in the ECB's SESFOD survey expect this decline in market-making activities to continue, and acknowledge that the collective ability of banks to make markets for the non-financial corporate segment in times of stress might be compromised as a result. The increasing role of open-ended funds raises stability concerns as demandable equity in these funds can have the same fire-sale properties as short-term debt funding. Difficulties in illiquid market segments can quickly spread to other segments (for example, if fund managers sell more liquid assets to meet redemptions) and to a broader range of investors, particularly if they affect highly leveraged investors (such as hedge funds and mortgage real estate investment trusts) which rely on short-term funding.

Perhaps worryingly, the latest SESFOD survey reports a slight easing in credit standards on wholesale securities funding, which may have aided the further expansion of the investment fund industry in recent months, in particular the hedge fund industry, which expanded to record size in 2013⁸ (see Chart 2.16). Against a backdrop of a substantial €500 billion (20%) increase in assets under management in 2013 for the global hedge fund industry, leverage among larger funds has been increasing, perhaps a reflection of some performance pressure as the returns in 2013 underperformed broad equity indices (see Chart 2.17).

Chart 2.17 Gross leverage of global hedge funds

(Oct. 2009 – Sep. 2013; average gross leverage per fund; multiples of net asset value)



Source: UK Financial Conduct Authority, "Hedge Fund Survey", March 2014.

Among euro area institutional investors, investment funds are most exposed to bond market corrections

Among euro area institutional investors, investment funds have the largest direct exposure to bond markets and also the highest liquidity risks. Investment funds include both money market funds (MMFs) and non-MMFs. Exposure to developments in debt securities markets both within and outside the euro area is significant for both (see Chart 2.18). Developments in investment funds can have important implications for the euro area financial system as they are closely connected with euro area banks; together they hold 14% of bonds issued by euro area credit institutions and provide over €400 billion in loans to euro area MFIs.⁹ Worryingly, liquidity risks are high and rising for investment funds. The vast majority of euro area bond funds are open-ended – and therefore exposed to the risk of a run – while only 6% of the bonds they hold have an original maturity of less than one year. According to Fitch data on EU prime MMFs, only 50% of total assets are considered highly liquid.

Strong gains in equity markets, despite weak earnings, supported a reduction in valuation gaps across euro area markets

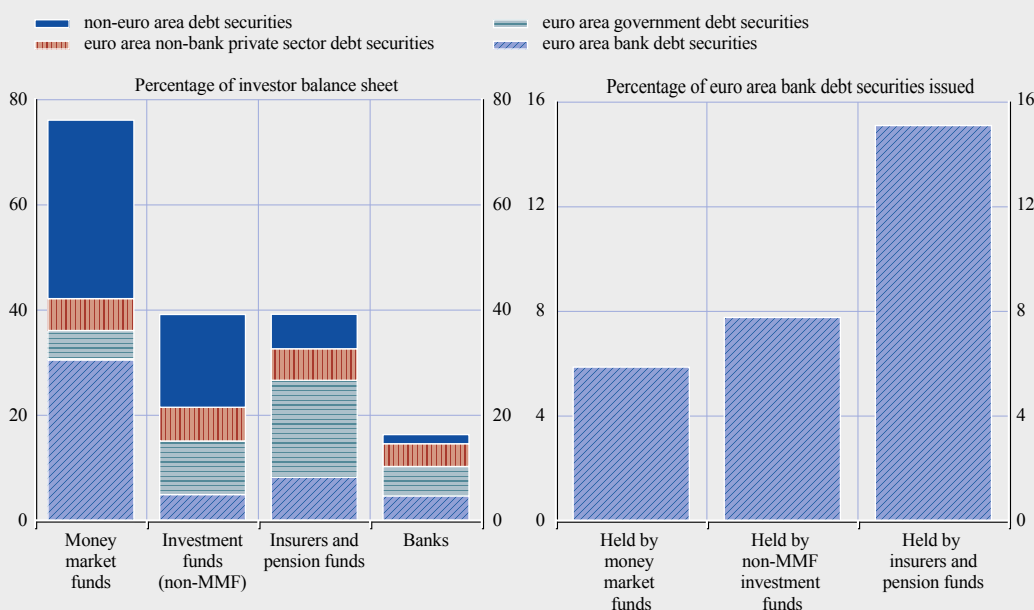
Amid strong demand from foreign and domestic investors, **equity indices** within advanced regions have recorded further gains and valuation gaps across euro area markets have been reduced. Broad-based price increases were supported by a wide range of factors including

⁸ According to data compiled by Hedge Fund Research.

⁹ Based on ECB statistics on money market funds and investment funds. MFIs include credit institutions and money market funds. More granular data are not available.

Chart 2.18 Euro area institutional investors' debt securities holdings

(Dec. 2013)



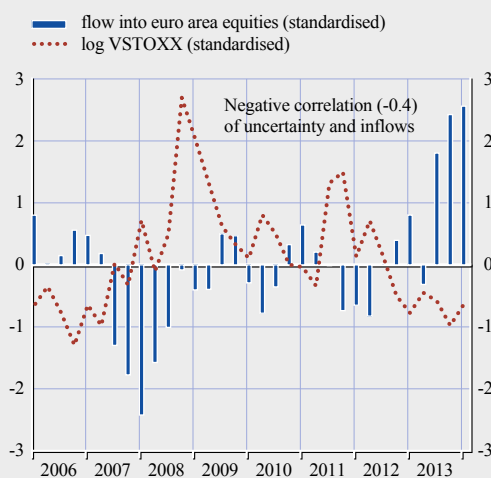
Sources: ECB and ECB calculations.

Notes: Banks refer to credit institutions located in the euro area. Bank debt securities refer to bonds issued by euro area credit institutions.

increased risk appetite, a further rebalancing of portfolios away from emerging markets, a rotation from bond to equity funds, high earnings expectations for euro area firms and relatively low levels of volatility (see Chart 2.5 and Chart 2.19).¹⁰ Rallies were more pronounced for bank shares and were only slightly affected by emerging market tensions. Strong share price gains in more vulnerable euro area countries supported price-to-book ratios, which show a reduction in valuation gaps across euro area markets, although some differences remain (see Chart 2.20). Although supported by improving fundamentals, the substantial and persistent gains in equity markets also reflect an intense search for yield. Signs of overvaluation in broad equity indices are not clear in sector-adjusted price-to-book ratios (see Chart 2.20), nor in ten-year trailing price/earnings ratios over a 20-year horizon (see Chart S.2.9). However, the very long-term perspective provided by the Shiller price/earnings ratio for

Chart 2.19 Implied stock market volatility and flows of global investment funds into euro area stocks

(Q1 2006 – Q1 2014; standard deviations from the mean)



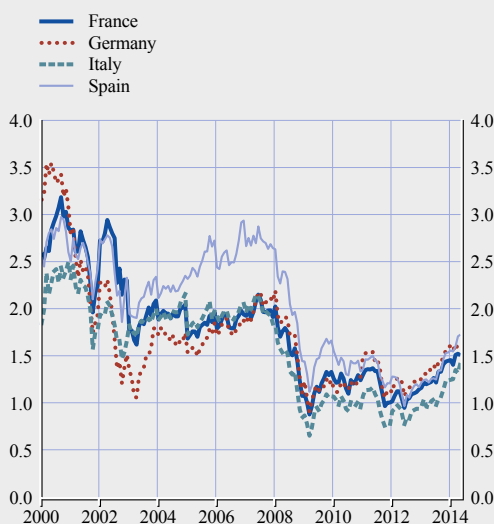
Sources: ECB, EPFR, Bloomberg and ECB calculations.

Notes: VSTOXX is based on the option-implied volatility of the EURO STOXX 50 index. Both VSTOXX and flow data are standardised quarterly averages. The latest observation is for Q4 2013.

¹⁰ Analysts' expectations of earnings per share for euro area corporations listed in the Dow Jones EURO STOXX index suggest robust double-digit growth since mid-2013 (around 14% over the next 12 months and almost 13% over the next five years).

Chart 2.20 Price-to-book ratios for euro area stocks adjusted for cross-country sectoral composition

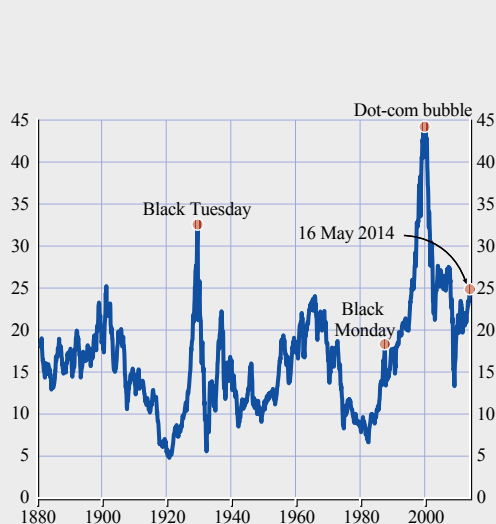
(Jan. 2000 – May 2014)



Sources: Thomson Reuters Datastream and ECB calculations.

Chart 2.21 Shiller price/earnings ratio for the S&P 500 index

(Jan. 1881 – May 2014)



Source: www.econ.yale.edu/~shiller/.

Note: Price/earnings ratio is based on average inflation-adjusted earnings from the previous ten years.

the S&P 500 index seems to suggest heightened valuations by historical standards (see Chart 2.21). In addition, hedge funds are, according to market participants, positioning themselves for an increase in market volatility. A sharp rise in volatility could have significant implications for investor flows into equities (see Chart 2.19).



3 EURO AREA FINANCIAL INSTITUTIONS

*Mirroring an improving macro-financial environment, sentiment towards euro area financial institutions has continued to strengthen amid progress in bank balance sheet repair and in the implementation of the banking union. A high degree of uncertainty nonetheless persists regarding the outlook for euro area financial institutions – and for banks in particular – mostly linked to lingering concerns about banks' asset quality. For banks, rising loan loss provisioning levels continued to weigh heavily on **financial performance**, dominating financial results at the end of last year (including sizeable one-off losses reported by some banks, partly in preparation for the ECB's comprehensive assessment). For insurers, the operating environment also remained difficult, with financial results displaying a modest but stable performance. A low-yield environment remains a particular concern for insurers over the medium term.*

*While balance sheet repair continues on aggregate, it remains in many ways uneven across banks. The deterioration in asset quality has been closely linked to past macroeconomic challenges, and as such mostly borne by banks in vulnerable countries. As macro-financial conditions improve, an ongoing steady improvement in banks' **capital positions** has increasingly benefited from new equity capital, following significant balance sheet deleveraging over the last years. Similarly, bank funding markets continue to strengthen, with further signs of receding fragmentation in both market and deposit funding. But fragmentation still persists in credit conditions, with bank lending generally having remained sluggish.*

*Macro-financial **scenario-based analysis** confirms that the financial stability risk outlook for financial institutions remains elevated in three main areas. First, the improving situation of euro area financial institutions remains vulnerable to a potential reassessment of risk in global markets, in particular via their exposures to compressed bond market premia, as well as emerging market-related assets. Second, despite further progress in loss recognition and balance sheet strengthening, asset quality concerns continue to trouble banks pending the results of the ongoing comprehensive assessment exercise. Third, despite a further easing in tensions in euro area sovereign debt markets, renewed stress at the heart of the euro area crisis remains possible, amid continued public debt sustainability challenges.*

*While these scenarios have the potential to have the largest impact on banks' solvency, the continued bolstering of balance sheets by banks and policy actions may ultimately mitigate the severity of estimated impacts. Indeed, steady progress continues in strengthening the **regulatory and supervisory framework** for financial institutions, markets and infrastructures both at the EU level and globally. Of particular relevance for the euro area, a further key step has been taken towards completing the banking union with the political agreement on the decision-making mechanism and funding for the proposed Single Resolution Mechanism that should help attenuate the link between banks and their sovereigns.*

3.1 BALANCE SHEET REPAIR CONTINUES IN THE EURO AREA BANKING SECTOR

FINANCIAL CONDITION OF EURO AREA BANKS

The **profitability** of euro area significant banking groups (SBGs) has remained weak, with a number of banks disclosing negative results in the fourth quarter of 2013 (see Chart 3.1). This weakness in earnings reflected three main factors. First, elevated loan loss provisions have continued, covering for asset quality deterioration as a legacy from the euro area recession. Second, some banks reported sizeable one-off losses in the last quarter of 2013, possibly also in relation to the preparation for the ECB's comprehensive assessment, involving a combination of a sharp rise in loan loss provisioning

Bank profitability remains subdued...

Chart 3.1 Euro area banks' return on equity

(2008 – Q1 2014; percentages; 10th and 90th percentiles and interquartile range distribution across SBGs)

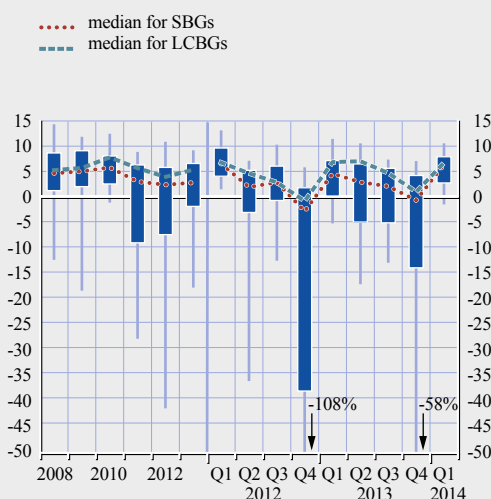
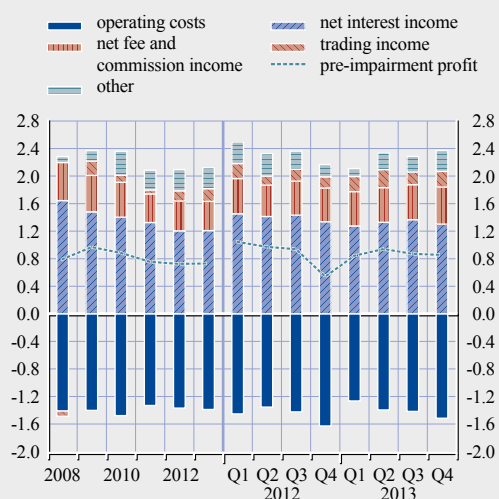


Chart 3.2 Pre-impairment profit of euro area banks and its main components

(2008 – Q4 2013; percentage of total assets; median values for SBGs)



and impairments on other assets at the same time as an accelerated build-up of capital buffers. Third, some banks booked high litigation charges and significant declines in fixed-income trading revenues. Ultimately, while both the fourth quarter of 2013 and the full year 2013 average financial performances of euro area banks were slightly better than a year earlier, a median return on equity of 3% for SBGs for 2013 indicates currently muted internal capital generation for many banks. Looking at more recent developments, results for the first quarter of 2014 were, on average, slightly higher than in the same period last year.

Banks' underlying operating performance, on average, showed little sign of improvement – with pre-impairment profits remaining flat in the last quarter of 2013 and for the full year (see Chart 3.2). This reflected a relative stability in both revenues and costs for 2013 as a whole. While stable on average, net interest income for banks in vulnerable countries showed signs of moderate recovery in the second half of 2013, with banks benefiting from declines in funding costs. Net fees and commissions rose slightly in the last quarter of 2013, partly reflecting higher fee income from corporate bond underwriting. Trading income also picked up somewhat, on average, in the last quarter of 2013 although patterns across banks varied, for instance due to differences in the relative weight of fixed income versus equity trading. At the same time, there was a slight uptick in operating costs for 2013 as a whole, albeit with substantial differences across banks. While some banks realised efficiency gains, as illustrated by lower cost-to-income ratios, others experienced increases, for instance as a result of increased provisions for litigation costs and restructuring costs.

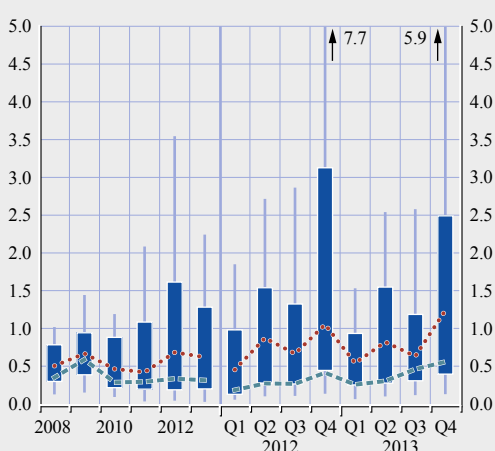
Headline results have been heavily affected by higher impairment costs, disproportionately affecting the group of smaller and medium-sized SBGs (see Chart 3.3). These costs have mainly been on loans but, in some cases, also on non-financial assets such as goodwill related to former acquisitions. Stark differences in **provisioning** levels across banks persisted, mainly driven by

... mainly due to still elevated or rising impairment costs...

Chart 3.3 Impairment charges of euro area banks

(2008 – Q4 2013; percentage of total assets; 10th and 90th percentiles and interquartile range distribution across SBGs)

- median for SBGs
- median for LCBGs

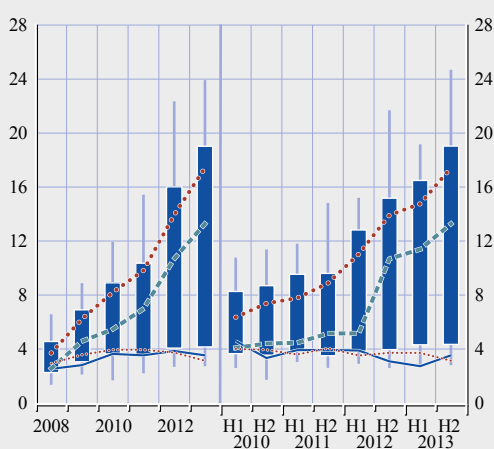


Source: SNL Financial.

Chart 3.4 Impaired loans of euro area banks in vulnerable and other countries

(2008 – H2 2013; percentages; 10th and 90th percentiles and interquartile range distribution across SBGs)

- other SBGs in vulnerable countries
- LCBGs in vulnerable countries
- other SBGs in other countries
- LCBGs in other countries



Source: SNL Financial.

Note: Based on publicly available data on SBGs, including LCBGs, that report annual financial statements and on data on a sub-set of those banks that report at least on a semi-annual basis.

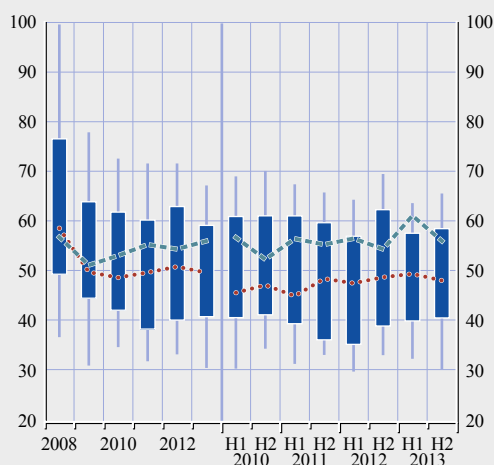
factors related to the economic cycle. In 2013, the median value of credit risk costs for SBGs in vulnerable countries, albeit declining somewhat, was still more than double the level in 2010. Average loan loss provisions for banks in other countries remained at moderate levels.

The reported deterioration in **asset quality** was mostly borne by euro area banks in countries that had witnessed stress over the last years. The continued deterioration in the impaired loan ratio in the second half of 2013 reflected a stark increase in banks within vulnerable countries, and in particular for SBGs other than the largest banks (see Chart 3.4). This latter development was possibly linked to higher exposure to the SME sector that was mostly affected by weak macroeconomic conditions in these countries. The divergent asset quality trends nonetheless also apply to large banks, with a median reported impaired loan ratio of 13% for large and complex banking groups (LCBGs) in vulnerable countries, contrasting with only 3% for their peers in other countries.

Chart 3.5 Coverage ratios of euro area banks

(2008 – H2 2013; loan loss reserves as a percentage of impaired loans; 10th and 90th percentiles and interquartile range distribution across SBGs)

- median for SBGs
- median for LCBGs



Source: SNL Financial.

Note: Based on publicly available data on SBGs, including LCBGs, that report annual financial statements and on data on a sub-set of those banks that report at least on a semi-annual basis.

... banks still
burdened by high
non-performing
loans...

Despite higher provisioning by a number of banks, the **coverage** of impaired (non-performing) loans by reserves did not improve in the second half of 2013, with the median coverage ratio for SBGs remaining around 50% (see Chart 3.5). While slightly declining, LCBGs' loan loss reserves remain considerably higher compared with smaller SBGs. On the other hand, for a number of banks with relatively low coverage ratios, increased provisions could barely keep up with the increase in non-performing loans.

Box 6

PROVISIONING AND EXPECTED LOSS AT EUROPEAN BANKS

Mounting credit losses affected European banks greatly during the financial crisis. In many cases, the corresponding adjustment in loan loss provisions occurred rather precipitously, likely influenced by a combination of market pressure and supervisory action. While for IRB banks the calculation of expected credit loss is tightly regulated in the Basel II Accord and the Capital Requirements Directive, banks retain considerable discretion in determining the amount of loan loss provisions. As a general rule, banks may create specific provisions only when there has been a credit event. This restriction implies that provisions typically lag the deterioration in loan quality and do not consider expected loss that is based on forward-looking default probabilities. This divergence in loss recognition results in a provisioning gap that in the course of the crisis needed to be closed, occasionally with the intervention of the competent authorities.

EU capital regulation prescribes that a provisioning shortfall – the difference between eligible provisions and expected loss for the portion of a bank under the internal ratings-based (IRB) approach – must be deducted fully from regulatory capital. Excess provision amounts, in turn, may be added to Tier 2 capital up to 0.6% of risk-weighted assets (RWA), subject to limitation at supervisory discretion. This so-called *regulatory calculation difference* (RCD) therefore leads to a capital charge even if banks avoid adequate provisioning that would affect profits and thus book capital.

Empirical evidence points to a delay in loan loss recognition in the early phase of the global financial crisis. Data for 110 banks in 16 European countries between December 2008 and June 2013 collected by the EBA-ECB Impact Study Group show that the RCD, expressed as a percentage of total exposure (EAD or exposure at default), became more negative in 2008-09 as provisions were slow to catch up with rising expected loss (see the chart). The difference subsequently narrowed as expected loss stabilised, while provisions kept trending upwards. In some jurisdictions, general provisions accumulated before the crisis were converted into specific provisions, thereby easing the adjustment burden.

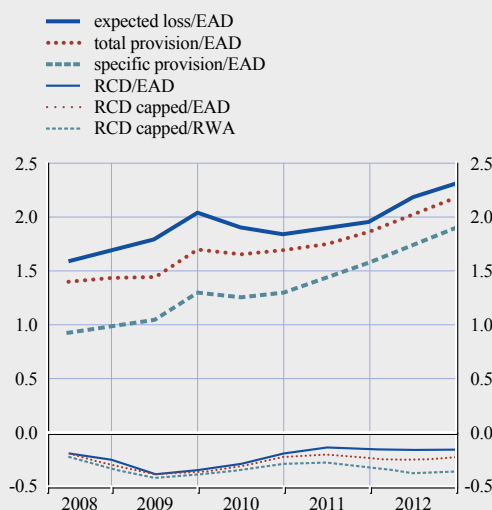
These developments were more pronounced at banks in vulnerable countries whose RCD initially exceeded the sample average but then improved markedly, in fact turning positive in 2013, not least due to additional supervisory provisions imposed in some countries under EU-IMF adjustment programmes. Overall, the increase in expected loss was primarily due to a rising share of non-performing loans that required an increase of the probability of default (PD) to 100%, whereas the PDs and thus the expected loss of non-defaulted exposures remained remarkably stable throughout the crisis.

The regulatory impact of the RCD is greater in practice since positive differences are capped and the deduction from regulatory capital needs to be expressed in RWA terms. As a growing number of banks began posting positive RCDs when the crisis abated, the cap of 0.6% of RWA became more binding, which is illustrated in a growing difference between the theoretical RCD (before applying the cap) and the RCD after capping (see the chart). At the same time, the rebalancing of risk assets and deleveraging more generally caused RWA to fall, thereby augmenting the regulatory impact of the RCD that, expressed in RWA, in 2013 was close to the maximum recorded in 2009 (see the chart). Ongoing changes to accounting standards have recognised this issue of the RCD, and their implementation should eventually contribute to correcting it. The International Accounting Standards Board, in 2013, published an exposure draft that introduces for financial instruments an expected credit loss model for the accounting recognition and measurement of credit losses. The reform expressly seeks to address the delayed recognition of credit losses that was identified during the financial crisis as a weakness in existing accounting standards. Under the proposal, recognition of credit losses would no longer be dependent on the bank first identifying a credit loss event. Rather, an estimate of expected losses would always be applied, based on the probability of a credit loss. For performing exposures this would require accounting for 12-month expected credit losses, while for exposures that have significantly deteriorated in terms of credit quality (including doubtful but not yet defaulted loans) lifetime expected credit losses would be recognised in the statement of financial position as a loss allowance or provision.

During the transition until IFRS 9 is implemented, the current accounting framework is likely to contribute to continued cyclicalities in capital requirements. As past pronounced initial increases in the RCD reflecting a provision shortfall illustrate, some capital-constrained banks may choose to run up the RCD rather than fully recognise rising loan losses by building sufficient provisions as doing so avoids a further deterioration in profits and the capital position visible to stakeholders. However, a rising provisioning gap eventually requires an even stronger adjustment and may have pro-cyclical effects as banks then choose to achieve their capital target in part through optimising risk-weighted assets via rebalancing portfolios to the detriment of certain borrowers. The potential of correlated provisioning to create systemic externalities in the efficient deployment of bank capital would suggest a role for timely supervisory action aimed at avoiding undue delays in provisioning, including by requiring additional general provisions for prudential reasons.

Expected loss, provisions and regulatory calculation difference

(2008 – 2012; percentages)



Source: European Banking Authority (EBA).

Capital positions
strengthened
further...

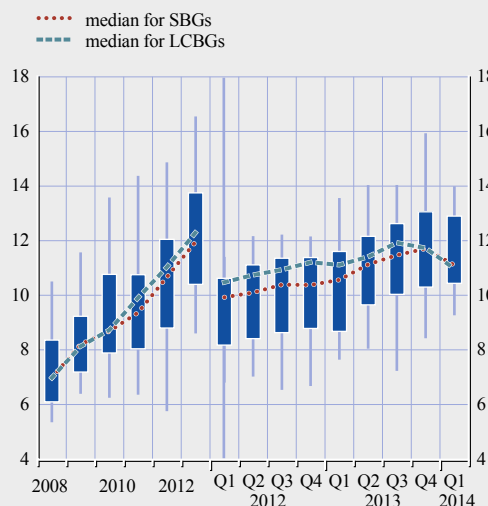
While the earnings performance was mixed, a steady across-the-board increase in euro area banks' **risk-weighted capital ratios** continued in the second half of 2013, although core Tier 1 (CT1) ratios slightly declined in the first quarter of 2014 (see Chart 3.6). It is important to stress, however, that changes in reported core Tier 1 ratios in the first three months of 2014 were mainly impacted by the application of new solvency rules under the CRR/CRD IV framework which led to an increase in risk-weighted assets. Looking at the development of fully-loaded Basel III common equity Tier 1 (CET1) ratios, the median CET1 ratio for euro area LCBGs rose to 10.4% at end-March 2014 (see Chart 3.7), slightly below the median level for their global peers, but still exceeding the fully phased-in 2019 minimum, including capital conservation and systemic importance buffers.

... mainly driven by
deleveraging but also
capital increases...

A decomposition of changes in banks' aggregate CT1 ratio over the last two years shows that, on average, deleveraging accounted for nearly

Chart 3.6 Core Tier 1 capital ratios of euro area banks

(2008 – Q1 2014; percentages; 10th and 90th percentiles and interquartile range distribution across SBGs)



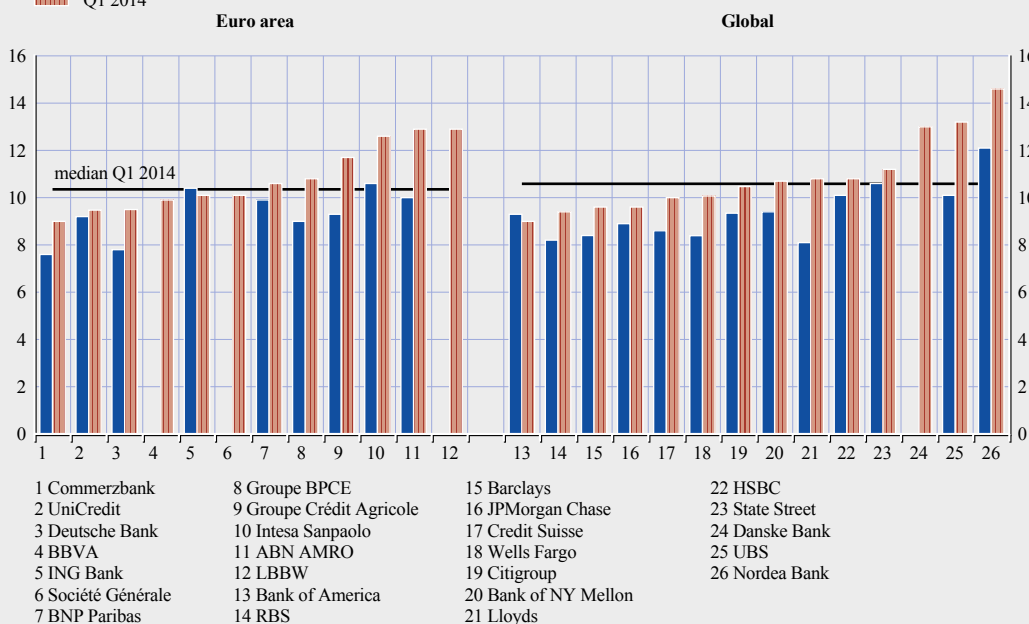
Source: SNL Financial.

Note: Based on publicly available data on SBGs, including LCBGs, that report annual financial statements and on data on a sub-set of those banks that report on a quarterly basis.

Chart 3.7 Basel III common equity Tier 1 capital ratios of euro area and global large and complex banking groups

(percentages)

■ Q4 2012
■ Q1 2014



Source: SNL Financial.

Note: Based on publicly available data on LCBGs.

half of the increase in CT1 ratios over the period, closely followed by capital increases, then de-risking. Within this time frame, capital increases and a shift towards assets with lower risk weights were the largest contributors in 2012 (see Box 8 for details), while in 2013 deleveraging gained in importance in the improvement of solvency ratios with a more limited role of capital increases (see Chart 3.8). In stark contrast with developments in 2012, the de-risking of balance sheets did not help to increase capital ratios in 2013, at least on average, and the average risk weight even somewhat increased last year.

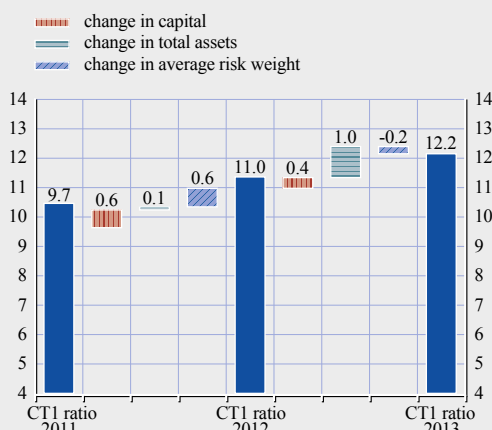
In addition to retained earnings, the most recent increases in CT1 capital have resulted from two other main sources. First, equity capital raisings have amounted to some €45 billion for SGBs since the middle of last year (excluding state-aid measures). Furthermore, some banks completed or announced capital increases in the first five months of 2014, possibly in preparation for the comprehensive assessment to address capital shortfalls in stress tests carried out at national level, but, in some cases, to repay state aid. Second, lower CT1 capital deductions and capital gains from asset sales have also contributed to capital increases.

Euro area SGBs also continued to improve their **leverage** ratios, measured as the ratio of tangible equity to tangible assets, although with differences between the largest banks and smaller SGBs (see Chart 3.9). This follows a rather large cumulative deleveraging by euro area monetary financial institutions (MFIs), which have reduced total assets by €4.3 trillion since peaking in May 2012. This process appears to have accelerated towards the end of last year, with an around €800 billion balance sheet reduction recorded in December 2013 alone – although around half of this decrease was reversed in January 2014 (see Chart 7 in the Overview). While this increased volatility in bank assets around the turn of the year partly reflects seasonal patterns, the higher than usual monthly balance sheet changes suggest some year-end balance sheet pruning ahead of the comprehensive assessment exercise.

... while some large banks face further deleveraging needs

Chart 3.8 Decomposition of changes in euro area banks' aggregate core Tier 1 ratio

(2011 – 2013; percentages and percentage points)

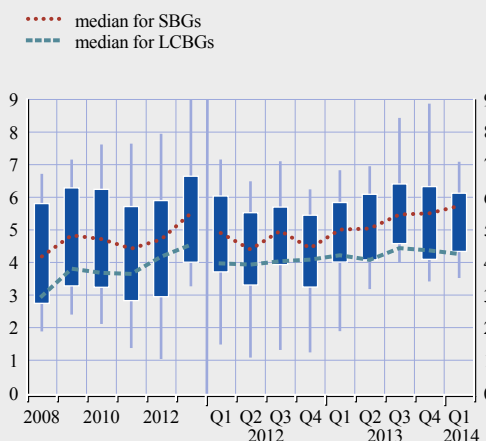


Source: SNL Financial.

Notes: The aggregate core Tier 1 ratio is based on publicly available data for a sample of 69 SGBs. The positive contributions of changes in total assets and average risk weight represent deleveraging and de-risking respectively.

Chart 3.9 Euro area banks' leverage ratios (tangible equity to tangible assets)

(2008 – Q1 2014; percentages; 10th and 90th percentiles and interquartile range distribution across SGBs)



Source: SNL Financial.

Note: Based on publicly available data on SGBs, including LCBGs, that report annual financial statements and on data on a sub-set of those banks that report on a quarterly basis.

Box 7

RECENT BALANCE SHEET STRENGTHENING BY EURO AREA BANKS

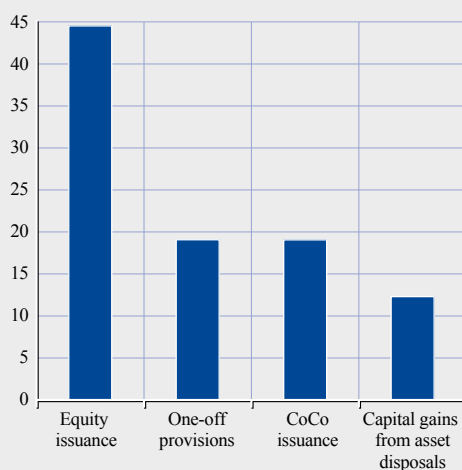
Since the third quarter of 2013, when discussions about the ECB's comprehensive assessment intensified, significant banking groups in the euro area have bolstered their balance sheets by over €95 billion through equity issuance, one-off provisions, contingent convertible (CoCo) bond issuance and capital gains from asset disposals.¹ This has been in addition to other forms of capital generation, including for example retained earnings and changes in deferred tax asset treatments, and de-risking (shifts from riskier to safer assets).

Issuance of equity has contributed the most to the strengthening of balance sheets, with completed and announced deals since July 2013 amounting to some €45 billion (see the chart below). One-off provisions, for example related to reclassification of assets and on extraordinary items, are estimated to have accounted for an additional €19 billion. Increased issuance of CoCos, to the tune of €19 billion, and capital gains from asset disposals of around €12 billion, have contributed to increasing banks' shock-absorption capacities as well.

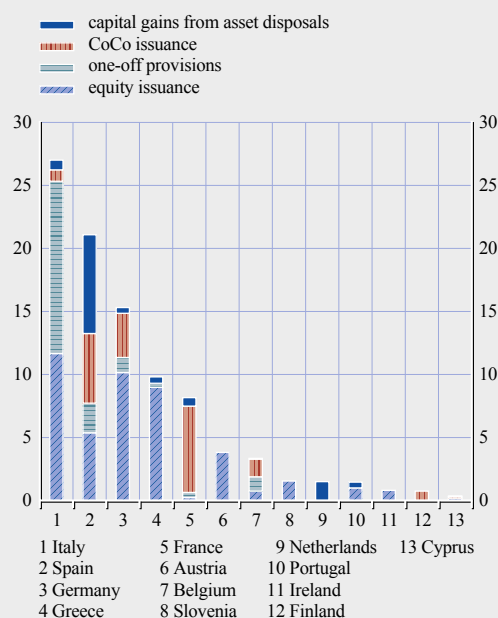
Balance sheet strengthening by euro area significant banking groups

(since July 2013; EUR billions)

a) By instrument



b) By country



Sources: SNL Financial, Dealogic, banks' financial reports, market research and ECB calculations.

Notes: One-off provisions include provisions related to reclassifications and extraordinary items identified by banks as being related to the asset quality review.

¹ The information in this box is based on publicly available, and in some cases partial, information and the numbers presented should therefore be seen as indicative estimates only.

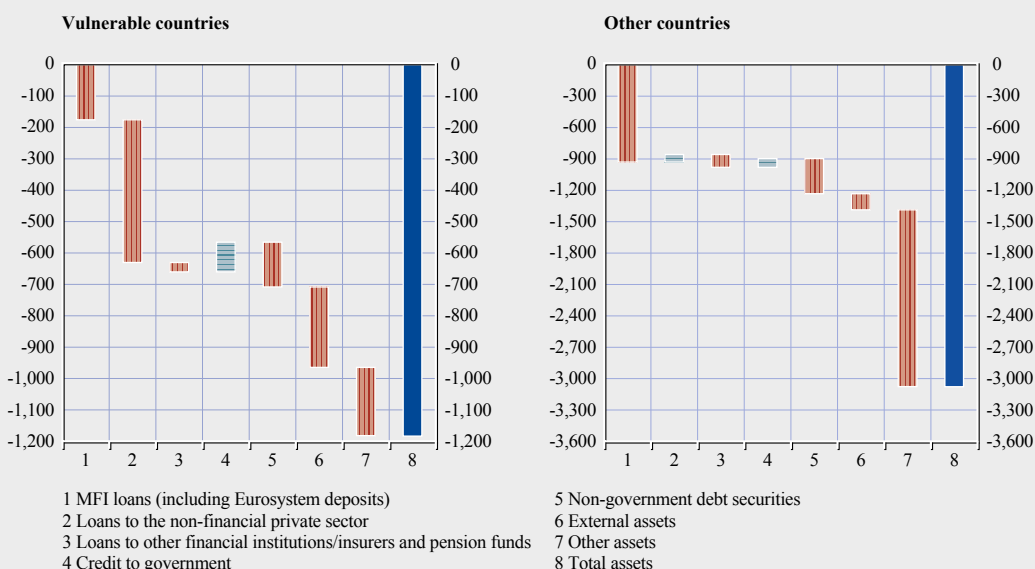
Actions by banks have, however, differed across euro area countries (see the chart above). These differences can largely be attributed to the differences in banks' operating environment, with the largest capital increases and other measures reported in Italy and Spain.

Some of the actions by banks were not triggered by the forthcoming comprehensive assessment, but are rather a result of – in some cases already planned – measures to de-risk balance sheets, improve capital levels amid previously identified insufficiencies and repay state-aid support. In addition, continued deterioration in banks' operating environment in some cases also necessitated action to further improve balance sheets. Nonetheless, some of the measures can be seen as preparatory action ahead of the comprehensive assessment and, regardless of the trigger for the action, banks' progress in strengthening balance sheets has been significant. The pre-emptive measures are welcome as they reduce the risk of congestion in bank capital markets after the publication of the comprehensive assessment results, should additional shortfalls be identified.

Looking back over a longer period, two main factors have contributed to bank balance sheet shrinkage. First, a reduction in derivative positions has made the most significant contribution to balance sheet shrinkage on aggregate, accounting for around half of the €4.3 trillion decline in euro area MFI assets since the peak in May 2012, and in particular by banks in other countries (see Chart 3.10). This largely reflects declines in the market value of interest rate derivatives over the last 12-18 months as well as the increased netting of (centrally cleared) derivative instruments which, in some cases, resulted in a substantial decline in banks' reported derivatives exposures. Second, a cutback in loans to the non-financial private sector (including asset transfers) specifically affecting countries under stress accounted for around one-third of the asset declines since May 2012.

Chart 3.10 Changes in euro area MFIs' key assets since May 2012 in vulnerable versus other countries

(June 2012 – Mar. 2014; EUR billions)



Sources: ECB and ECB calculations.

Note: Other assets largely consist of derivatives.

Box 8

TO WHAT EXTENT HAS BANKS' REDUCTION IN ASSETS BEEN A DE-RISKING OF BALANCE SHEETS?

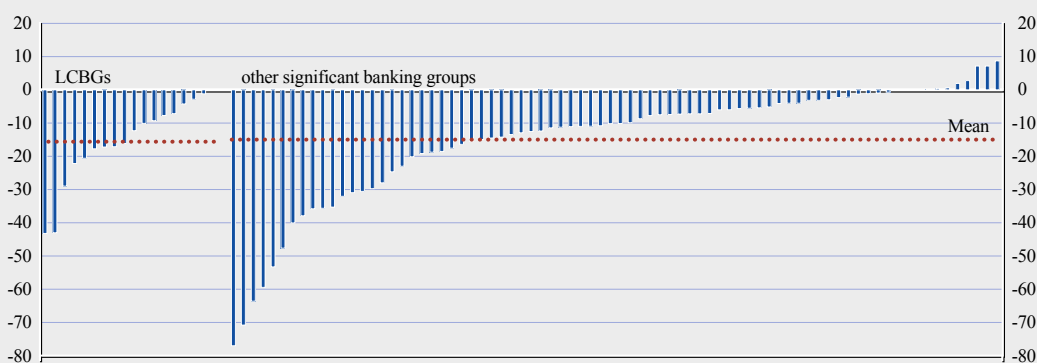
Deleveraging by euro area banks has been significant over the last years. A fall in euro area MFI balance sheets (euro area-domiciled assets only) by €4.3 trillion since May 2012 underscores euro area domestic balance sheet reduction; taking a broader view of *consolidated* balance sheets suggests an even larger figure. Indeed, significant banking groups in the euro area have reduced the size of their *consolidated* balance sheets (that is, including assets outside the euro area) by over €5 trillion – a 20% decline – since their respective peak values (which on aggregate was in the first half of 2012, though differing across banks). The extent of asset reductions has, however, varied greatly across banks with some banks reporting stable or even growing total assets, whereas banks most affected by the global financial crisis – some of which are undergoing orderly restructuring or a winding-down of operations – have cut more than two-thirds of their balance sheets (see Chart A). This raises the question to what extent the reduction in total assets has actually reduced banks' risk exposures.

Although SBGs reported a significant reduction in total assets during 2013, the decrease in risk-weighted assets was even greater (see Chart B). Indeed, whereas total assets increased each year from 2009 to 2012, on average, *risk-weighted assets* have been on an accelerated declining path ever since 2009 (see Chart B). The share of risk-weighted assets as a percentage of total assets has, on average, declined by some 13 percentage points, to around 45% of total assets, but with a range from 16% to 85% of total assets across banks. This could suggest that banks' have been more aggressive in cutting higher-risk exposures, but it has also led analysts, investors and supervisors to question to what extent the reduction in risk-weighted assets has been achieved by adjustments to banks' internal models.¹

Information about the actual level of de-risking of banks' balance sheets can be obtained by analysing changes in *exposures at default* (EADs) – the credit risk exposure measure used in the Basel

Chart A Changes in euro area banks' total assets

(percentage decline from peak to most recent value)



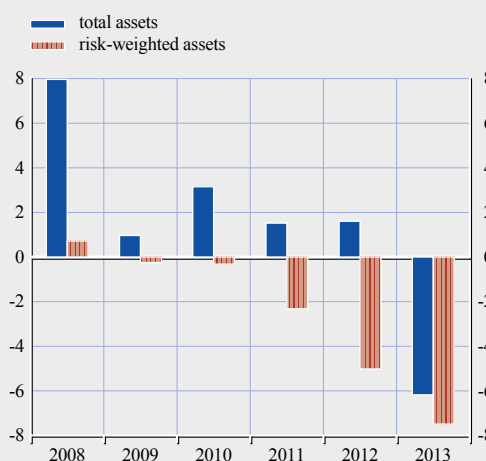
Source: SNL Financial.

¹ See Box 4 in ECB, *Financial Stability Review*, May 2013.

framework – from banks' Pillar 3 disclosures. Between 2011 and 2013 data for a sample of 21 euro area significant banking groups (SBGs) for which information is available show that the aggregated credit exposure at default declined by around €682 billion, which suggests a relatively strong overall reduction in aggregate credit risk exposures. The aggregate decrease consisted mainly of a fall of €580 billion (-13%) in corporate exposures, €250 billion (-18%) in financial institution exposures and €155 billion (-45%) in securitisation exposures (see Chart C). These changes resulted in banks reducing their total credit risk capital charges by 34% from 2011 to 2013. Although the largest decrease in exposure was observed for corporates, this exposure class made up about one-third of the total credit risk exposure in 2013 and absorbed 57% of total capital requirements (see Chart D).

Chart B Changes in euro area banks' total assets and risk-weighted assets

(2008 – 2013; percentage change per annum; averages for significant banking groups)

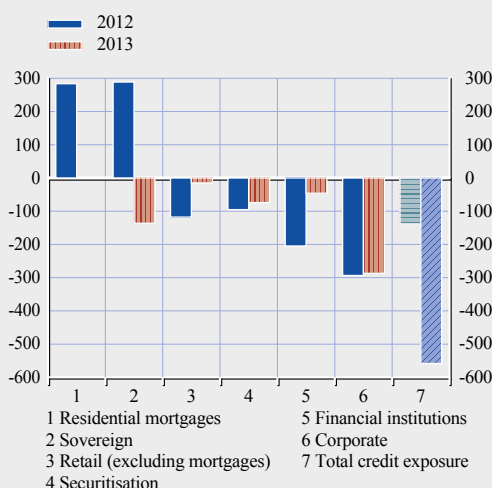


Sources: SNL Financial and ECB calculations.

A shift from capital-intensive exposures, such as corporates, towards less capital-intensive exposures, such as sovereign and secured lending, reflects changes in banks' operating environment – including loan demand – and the increased supply of sovereign debt in the euro area during the period. That said, some of the exposure changes were likely also driven by efforts by banks to de-risk their balance sheet, also with a view to meeting more stringent regulatory requirements. This was reinforced by increasing exposures to retail mortgages that are less capital intensive. Furthermore, tensions in euro area funding markets are likely to have

Chart C Changes in selected euro area significant banking groups' exposures at default

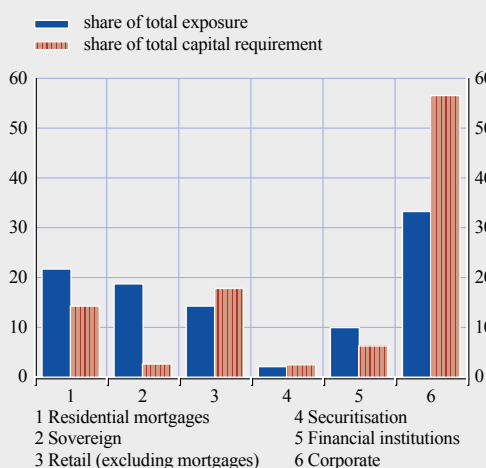
(EUR billions)



Sources: Banks' Pillar 3 reports and ECB calculations.

Chart D Selected euro area significant banking groups' exposures at default and capital requirements

(2013; percentage of total)



Sources: Banks' Pillar 3 reports and ECB calculations.

led to a reduction in exposures towards financial institutions, which was reinforced by regulatory changes in calculating the capital charge for this type of exposure. The decrease in securitisation exposures incorporates the significant reduction in the size of the securitisation market, but also regulatory changes that lead to higher capital charges for this type of exposure (e.g. more stringent market risk capital requirements under Basel 2.5).

All in all, euro area banks have significantly bolstered their loss-absorption capacities in recent years and the large reduction in euro area banks' balance sheets is likely to have contributed to lowering the level of risk confronting banks. It is, however, difficult to assess to what extent the asset shedding has led to a true de-risking of balance sheets. This is important as a deleveraging process could unduly reduce the supply of credit to the economy. The comprehensive assessment carried out by the ECB will make a significant contribution towards making banks' balance sheets more transparent. In addition, by identifying and implementing necessary action, it will contribute to banks' balance sheet repair and confidence building, which will support the banking sector's ability to extend credit.

BANKING SECTOR OUTLOOK AND RISKS

Outlook for the banking sector on the basis of market indicators

Market-based indicators point to an improving outlook

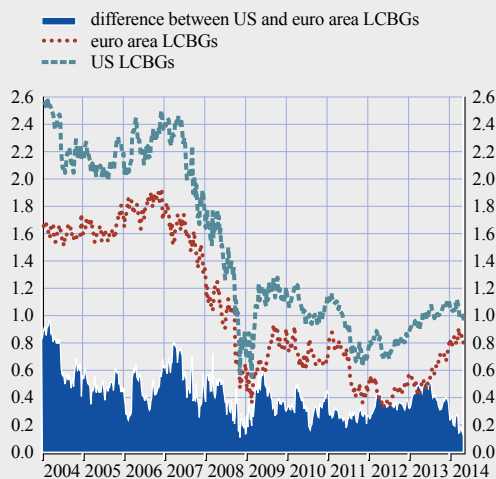
Market-based indicators suggest a further improvement in the outlook for euro area banks since the finalisation of the last FSR. In particular, euro area LCBGs' price-to-book ratios rose to their highest levels in more than three years (see Chart 3.11), thanks to progress made both in balance sheet repair and in the implementation of the banking union – both of which likely contributed to investors' increasing risk appetite for euro area bank stocks. Nevertheless, the latest reading of price-to-book ratios, which remain below 1 for a number of banks, suggests that concerns continue to linger about banks' asset quality and earnings outlook.

Indeed, while the latest earnings forecasts for euro area LCBGs signal an improvement for 2014, market expectations of profitability, on average, remain at low levels in particular for banks in vulnerable countries (see Chart 3.12). Furthermore, the implied volatility of euro area bank share prices, albeit declining, remained higher than that of general market indices (see Chart S.2.11), indicating the still higher uncertainty regarding the outlook for the banking sector in comparison with, for instance, that for the non-financial sectors.

Similarly, a market-based measure of systemic banking sector stress suggests that, following a significant decline in the second half of 2013, systemic risk within euro area banks is currently at the lowest level recorded in three years (see Chart 3.13). Looking at the dispersion of bank-level credit default swap (CDS) spreads, despite improvements across

Chart 3.11 Price-to-book ratios of large and complex banking groups in the euro area and the United States

(Jan. 2004 – May 2014; ratio)



Sources: Bloomberg and ECB calculations.

Note: Median values for LCBGs in the United States and the euro area.

Chart 3.12 Return on equity of euro area significant banking groups and analysts' forecasts

(Q1 2004 – 2014; percentages)

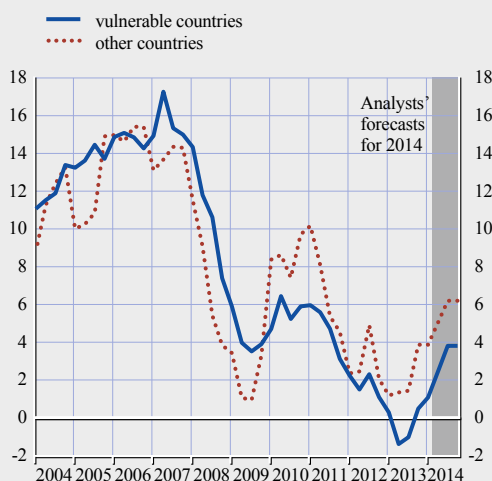


Chart 3.13 Measure of euro area banking sector stress

(Jan. 2010 – May 2014; probability; percentages)



the board, differences in the perceived credit risk of large banks remain wide, partly highlighting differences in the outlook for asset quality (see Chart S.3.27). The equity price and balance sheet-based SRISK measure – an alternative measure of systemic risk – also declined in the last few months, falling to a level well below that observed in mid-2011 (see Chart 3.14).

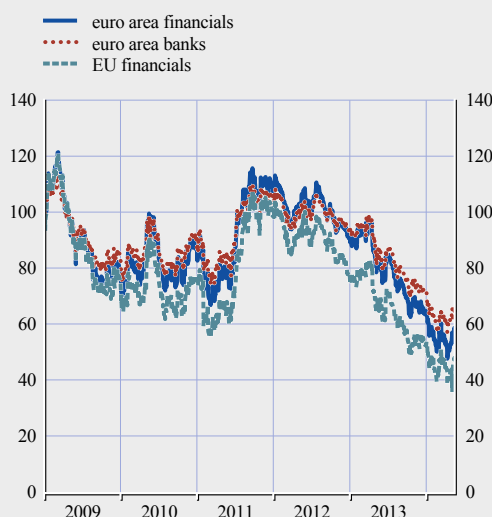
Credit risks emanating from banks' loan books

The level of **credit risk** in the loan book of the euro area banking sector is closely tied to economic fortunes and, with a weak, fragile, uneven and gradual economic recovery in the euro area as a whole, these risks remain elevated. The effects of this appear particularly pronounced for MFI lending to the non-financial private sector, which remained weak, while lending to households stayed broadly stable. Within these aggregate figures, financial disintermediation may be playing a role, with distributional consequences benefiting larger firms with access to international markets and hurting smaller and medium-sized firms reliant on bank-based finance.

This challenge for the euro area banking sector is, however, part of a broader phenomenon of non-financial sector deleveraging in many advanced economies. Indeed, credit conditions

Chart 3.14 SRISK for euro area banks and EU financials

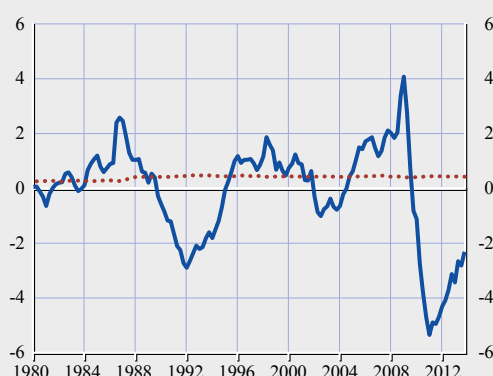
(Jan. 2009 – May 2014; index: Jan. 2009 = 100)



Credit risk remains elevated...

Chart 3.15 Global credit gap and optimal early warning threshold

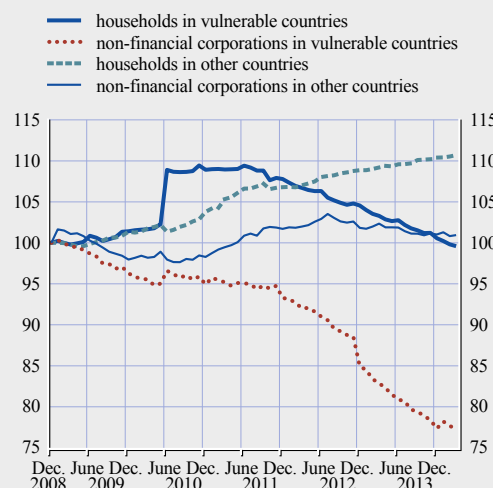
(Q1 1980 – Q4 2013; percentages)



Sources: ECB and ECB calculations.
Note: Index for 18 OECD countries – see Alessi, L. and Detken, C., “Quasi real time early warning indicators for costly asset price boom/bust cycles: A role for global liquidity”, *European Journal of Political Economy*, Vol. 27(3), September 2011.

Chart 3.16 MFI lending to the non-financial private sector in vulnerable and other euro area countries

(Dec. 2008 – Mar. 2014, index: Dec. 2008 = 100)



Source: ECB.
Note: Data are not adjusted for loan sales and securitisation.

across OECD economies have remained relatively weak by historical standards, with a global credit gap for OECD countries remaining well below its early warning threshold for costly asset price booms, despite some further improvement in the second half of 2013 (see Chart 3.15). These aggregate developments, however, belie stark heterogeneity in lending conditions across countries as economic recoveries proceed at different speeds. Within the euro area, continued strong declines in lending to the non-financial private sector recorded in more vulnerable countries were partly offset by moderate lending growth in core countries (see Chart 3.16).

According to survey information, much of the observed weakness in credit flows over the last years has been closely tied to weak credit demand, rather than credit supply impediments. In this vein, the results of the April 2014 euro area bank lending survey suggest promising tentative signs of easing credit standards for household loans and a stabilisation of credit conditions for non-financial corporations (NFCs).

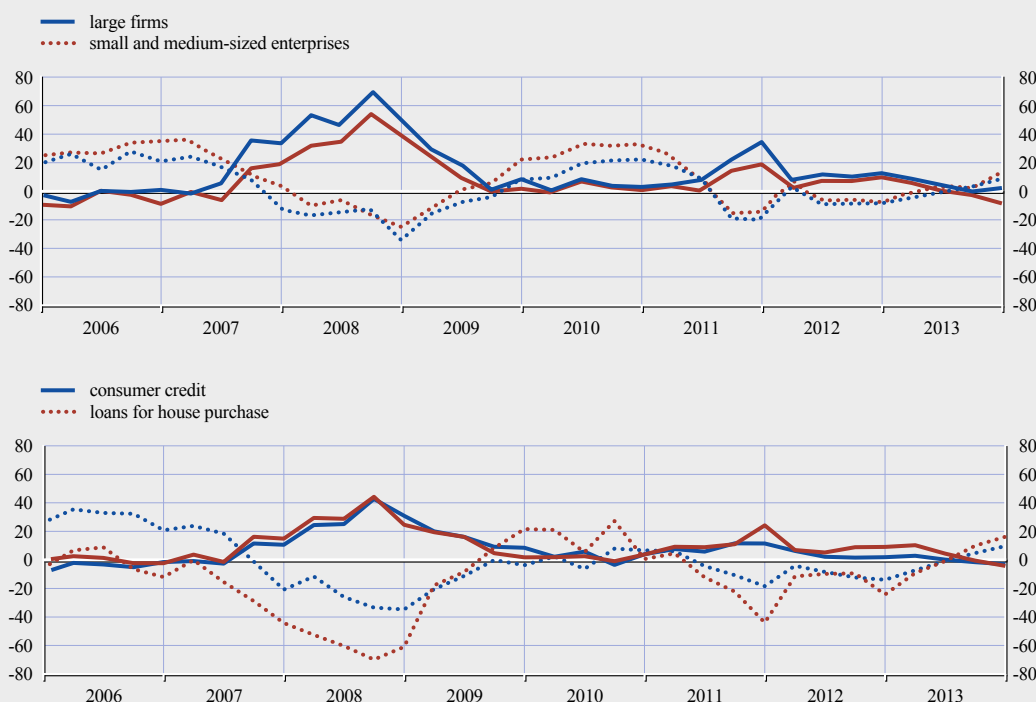
They also point to a recovery in credit demand for both households, irrespective of the purpose of the loan, and NFCs, regardless of the firm size. Perhaps more significant, survey evidence also suggests that the ongoing easing of credit standards has been relatively stronger for small and medium-sized enterprises (SMEs) than for large firms (see Chart 3.17). While these signs could indicate a turning point in credit flows, they are closely tied to the pace of economic expansion and its impact on income and earnings risks for households and NFCs in a context of ongoing challenging balance sheet adjustment.

... with a continued rise in non-performing loans

At the country level, a continued rise in non-performing loans (NPLs) is particularly visible in vulnerable euro area countries (see Chart 3.4 above), although there are some first tentative signs of a slowdown in the rate of increase of NPLs in some countries, most notably in Portugal. Available

Chart 3.17 Credit standards and demand conditions in the non-financial corporate and household sectors

(Q1 2006 – Q1 2014; weighted net percentages)

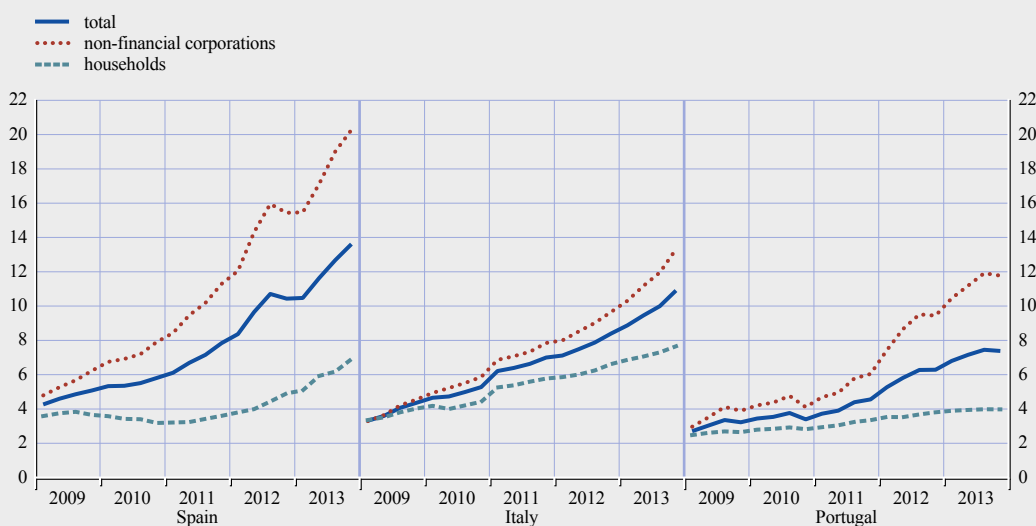


Source: ECB.

Notes: The solid lines denote credit standards, while the dotted lines represent credit demand. Credit standards refer to the net percentages of banks contributing to a tightening of credit standards, while credit demand indicates the net percentages of banks reporting a positive contribution to demand.

Chart 3.18 Non-performing loan ratios in selected euro area countries, broken down by economic sector

(Q1 2009 – Q4 2013; percentages)



Source: National central banks.

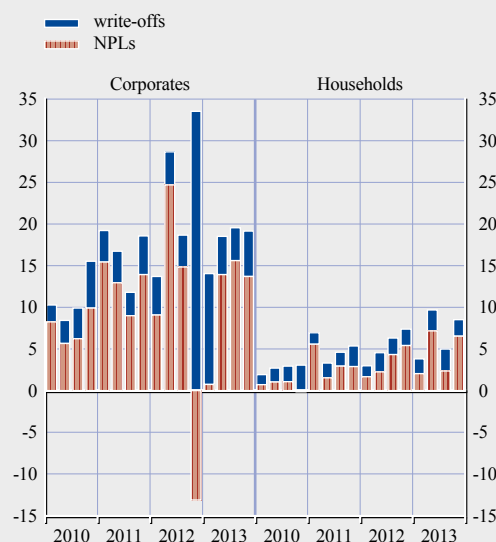
Note: Given differences in national NPL definitions, cross-country comparability is limited.

data suggest that the rise in NPLs mainly stems from the corporate sector (see Chart 3.18). This is in part reflected in the persistent divergence of lending rates for NFCs and SMEs in particular (see Section 1).

A further rise in non-performing loans is likely in the coming quarters for countries which saw the most severe economic downturns, as asset quality trends historically tend to follow economic developments with a lag. Nevertheless, there are some tentative signs that the pace of credit quality deterioration could ease in an increasing number of countries as the economic recovery gains momentum. In fact, the combined quarterly change of corporate NPLs in Spain, Italy and Portugal (where sectoral NPL data are available) appears to have stabilised in the last two quarters of 2013 (see Chart 3.19). The upcoming comprehensive assessment exercise will be crucial in furthering the process of bank balance sheet repair, ensuring prudent

Chart 3.19 Quarterly change in non-performing loans and loan write-offs in Spain, Italy and Portugal

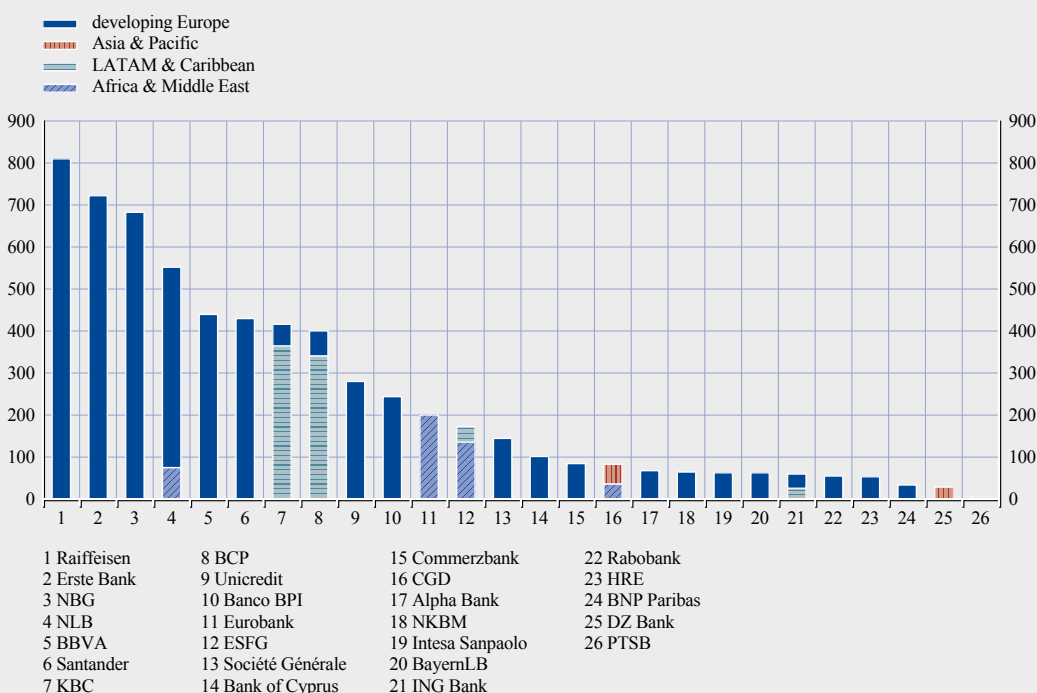
(Q1 2010 – Q4 2013; EUR billions)



Sources: National central banks and ECB.

Chart 3.20 Emerging market credit risk exposures of selected euro area significant banking groups

(June 2013; exposure at default as a percentage of common equity)



Source: EBA.

asset valuation and stricter loan loss recognition as well as providing more transparency on asset quality. Complementing this, the cleaning-up of bank balance sheets can be fostered at the national level by removing legal and judicial obstacles to timely NPL resolution.

Finally, while euro area banks' credit risks mainly emanate from domestic exposures, some banks with significant cross-border exposures in emerging market economies (EMEs) also face the risk of asset quality deterioration in some of these countries. In fact, some SBGs are highly exposed to EMEs, based on their exposure at default (EAD) to common equity, in particular to countries in "developing Europe" (see Chart 3.20). Should the macroeconomic environment deteriorate further, SBGs most exposed to EMEs could face higher loan losses on these portfolios in the period ahead (see Special Feature D for details).

FUNDING LIQUIDITY RISK

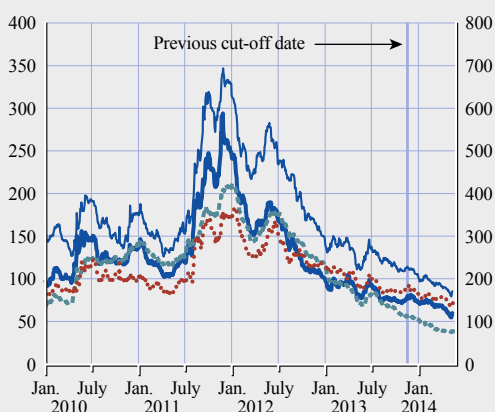
Market-based bank funding conditions remain at their most favourable in years. Average spreads on bank debt continued to tighten for most, if not all, debt instruments (see Chart 3.21). There was higher issuance of both senior unsecured and subordinated debt by euro area banks in the first five months of 2014 compared with a year earlier (see Chart 3.22). Looking at the different funding instruments, investor appetite for junior claims remains very strong. The market for subordinated debt, including less traditional contingent convertible capital instruments (CoCos), also remained buoyant driven both by an increased supply of Basel III-compliant additional Tier 1 instruments and by the continued strong investor demand for high-yielding (hybrid) debt instruments. This trend is expected to persist throughout this year and beyond as banks will continue to build up their subordinated debt buffers to prepare to meet the CRR/CRD IV total capital and leverage ratios as well as minimum bail-in requirements.

Funding conditions remained very favourable...

Chart 3.21 Spreads on banks' senior debt, subordinated debt and covered bonds

(Jan. 2010 – May 2014; basis points)

- iBoxx EUR banks senior (left-hand scale)
- ... iBoxx EUR non-financials senior (left-hand scale)
- iBoxx EUR covered (left-hand scale)
- iBoxx EUR banks subordinated (right-hand scale)

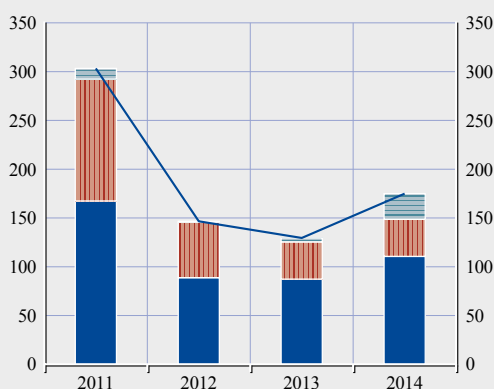


Sources: ECB and Markit.

Chart 3.22 Debt issuance of euro area banks broken down by type

(Jan. – May for each year; EUR billions)

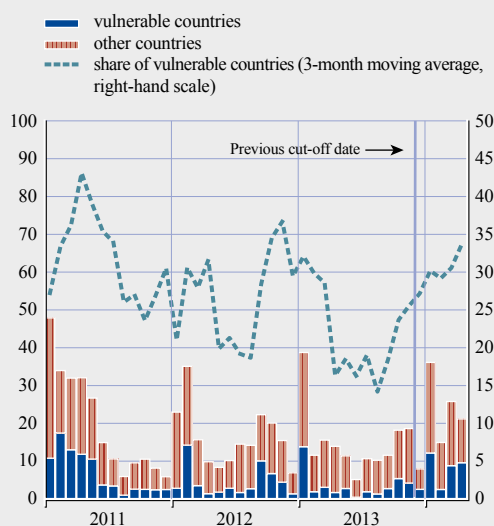
- senior unsecured
- covered bonds
- subordinated
- total



Source: Dealogic.
Note: Excludes retained deals.

Chart 3.23 Monthly senior unsecured debt issuance by euro area banks and the share of vulnerable countries

(Jan. 2011 – Apr. 2014; EUR billions, percentages)

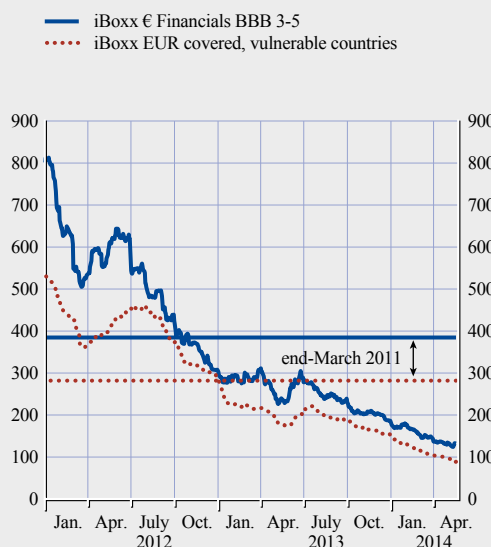


Source: Dealogic.

Notes: Excludes retained deals. "Vulnerable countries" refer to Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.

Chart 3.24 Covered bond spreads in vulnerable euro area countries and senior spreads for lower investment-grade financials

(Jan. 2012 – May 2014; basis points)



Sources: ECB and Markit.

Note: "Vulnerable countries" in this chart refer to Ireland, Italy, Portugal and Spain due to the availability of covered bond spread data.

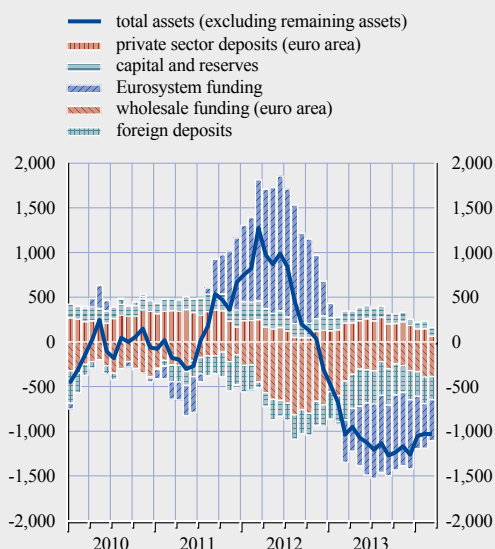
... and
fragmentation
of market-based
funding also
declined...

Market-based funding appears to be widely available, suggesting a strong reversal of the financial fragmentation that emerged in recent years. This includes the improved access to debt markets by some banks that had previously been shut out of capital markets, not least due to their weaker balance sheets/capital positions. In another sign of improving funding conditions, banks' debt issuance activity has become more broad-based, marked by a further rise in the share of banks in vulnerable countries in senior unsecured debt issuance (see Chart 3.23) as well as the return of several lower-rated banks to senior debt markets. Similarly, a number of second-tier banks with only intermittent market access in the past few years could increase debt issuance volumes and at lower costs. In fact, the segmentation of bank debt markets by pricing declined further, reflected in the narrowing spread differential on debt issued by banks in other countries and vulnerable countries (see Chart 3.24).

The funding situation of euro area banks has also benefited from continued **deposit** inflows in most countries, albeit at a slowing pace. As a result, the trend towards less reliance on wholesale funding sources continued, as indicated by a further decline in loan-to-deposit ratios (see Chart S.3.15), in conjunction with the continued deleveraging process which reduced banks' overall funding needs (see Chart 3.25). Moreover, banks in many euro area countries, including most vulnerable countries, continued to reduce their dependence on central bank funding by repaying funds borrowed through three-year longer-term refinancing operations (LTROs), with the overall repayment rate rising to 54% in mid-May 2014 from 39% at end-November 2013.

Chart 3.25 Monthly flows in main liabilities of the euro area banking sector

(Jan. 2010 – Mar. 2014; 12-month flows, EUR billions)

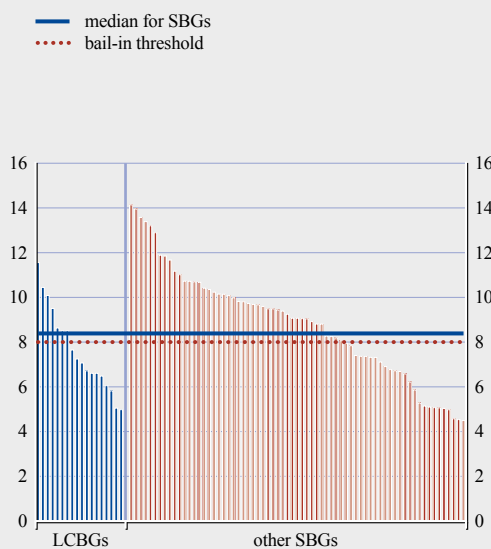


Source: ECB.

Note: Total assets are adjusted for remaining assets, which largely consist of derivatives.

Chart 3.26 Share of subordinated debt and equity in total liabilities for euro area banks

(end-2013 or latest available; percentage of total liabilities)



Sources: SNL Financial and ECB calculations.

Note: The calculation excludes derivative liabilities from the denominator.

Regarding remaining funding vulnerabilities, while funding market improvements for banks were underpinned by continued balance sheet strengthening as well as the decline in sovereign debt yields, the broadening issuer base towards banks with lower credit ratings as well as increased demand for higher-yielding but more complex instruments such as CoCos (see Box 9) should also be seen in the context of investors' search-for-yield behaviour. Therefore, improvements in the availability and cost of market funding remain vulnerable to a potential reassessment of risk premia and/or adverse changes in sovereign risk perceptions.

Furthermore, uncertainty remains regarding the extent to which bail-in concerns are reflected in the pricing of senior unsecured debt, while rating agencies are yet to fully incorporate bail-in implications in banks' unsecured ratings. It is likely that banks intend to cover much of the shortfall of "bail-inable" debt with subordinated debt so as to protect senior debt holders in order to achieve lower funding costs on a bigger portion of their debt structure. Therefore, banks with a buffer of equity and subordinated debt below the 8% bail-in threshold may be at risk of facing higher senior funding costs in future (see Chart 3.26). However, as yet no such relationship can be identified for a sample of SGBs, possibly indicating the dominance of other factors (e.g. sovereign risk) in the pricing of bank debt.

... but improvements remain vulnerable to a potential reassessment of risk premia

Box 9

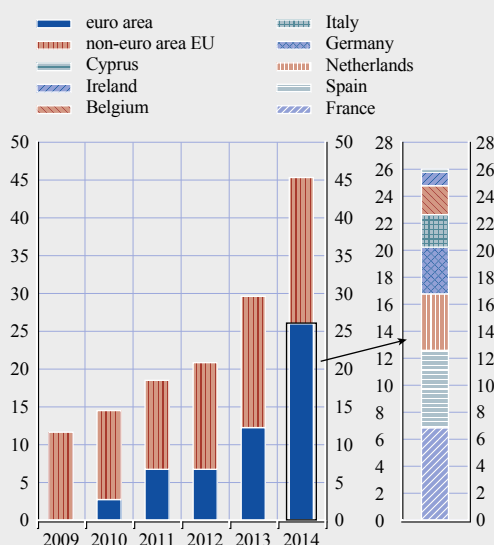
DEVELOPMENTS IN MARKETS FOR CONTINGENT CAPITAL INSTRUMENTS

As part of the phase-in of Basel III risk-weighted capital and leverage requirements, there is a potential for growth in the use of hybrid debt instruments. The quantitative risk-weighted capital requirements for the Tier 1 (T1) and total capital ratios are significant – implying a 1.5 percentage point capital ratio requirement using additional Tier 1 (AT1) capital (or hybrid debt), as well as a 2.5 percentage point requirement for Tier 2 (T2) capital instruments. At the same time, the leverage ratio needs to be met using Tier 1 capital with no restrictions on AT1 instruments. Under the European transposition of Basel requirements (CRD IV), all AT1 instruments are required to have specific write-down or conversion features, as demonstrated by contingent convertible bonds (CoCos). It is therefore not surprising that there has been a significant recent pick-up in CoCo issuance by euro area banks.

The CoCo market in Europe is relatively recent but not entirely new. EU banks have issued since 2009 a variety of contingent capital instruments in the amount of approximately €45 billion, of which €26 billion were issued by banks in the euro area (see Chart A). Banks' CoCo issuance activity picked up strongly in 2013 and in the first five months of 2014, partly driven by banks' efforts to issue CRR/CRD IV-compliant instruments. This is also reflected in the increasing share of AT1 instruments (see Chart B). In addition to the public CoCo issuances, some banks from countries under financial assistance programmes received state aid and recapitalisation in the form of CoCos that are owned by the state.

Chart A Outstanding amount of EU banks' publicly issued CoCos

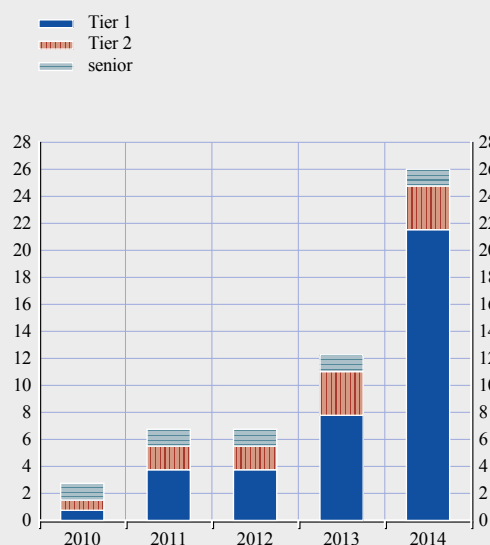
(Jan. 2009 – May 2014; EUR billions)



Sources: Dealogic, Bloomberg and ECB calculations.
Note: The chart does not include CoCos subscribed by the government as part of state-aid measures.

Chart B Euro area banks' cumulative CoCo issuance by type

(Jan. 2010 – May 2014; EUR billions)

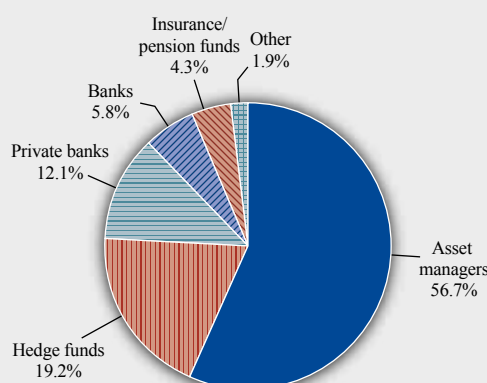


Sources: Dealogic, Bloomberg and ECB calculations.
Note: The chart does not include CoCos subscribed by the government as part of state-aid measures.

While on aggregate this nascent market segment is growing, the European CoCo market is by no means homogeneous and instruments differ in terms of their main features, including their loss-absorption mechanism, trigger levels, maturity or legal basis. Looking at the composition of CoCos by regulatory treatment, the majority of euro area banks' CoCo issuances are AT1 instruments. However, some European banks also issued Tier 2 instruments for different reasons such as national regulatory objectives or credit rating objectives. Regarding the loss-absorption triggering mechanism, most of the CoCos issued by euro area banks have been designed to meet AT1 criteria, with triggers based on common equity Tier 1 (CET1) ratios and with varying trigger levels, although they are mostly set at a minimum level of 5.125%. However, in some cases, CoCos have much higher triggers, even above 8% CET1. The loss-absorption mechanism for the majority of outstanding CoCos issued by euro area banks is principal write-down (permanent or temporary), although recent issues were dominated by CoCos with equity conversion triggers.

Chart C CoCo investors by type for issuances since 2013

(Jan. 2013 – May 2014)



Sources: Dealogic, Bloomberg and ECB calculations.
Note: Based on a sample of CoCo issuances representing 50% of total (public) issuance by EU banks since the start of 2013.

This growth in bank issuance clearly has a counterpart in growing investor demand. A CoCo investor base has developed, including a growing share of real money investors (see Chart C). This provides welcome stability to the investor base, encompassing now (according to market reports) predominantly asset managers and banks, in addition to “fast money” from private banks and hedge funds. The CoCo market is global in terms of the investor base geography.

The market started as a predominantly US dollar-denominated issuance market, but a growing euro-denominated market is catching up. CoCo structures remain complex and no trend towards standardisation is apparent to date. While less surprising for instruments issued before the agreement on the transposition of the Basel III framework into EU law, the kick-start of CoCo issuances following the June 2013 finalisation of the CRR/CRD IV package showed national regulators making ample use of the discretion granted to them, while not supporting greater harmonisation of structures.

While these state-contingent write-down possibilities offer a welcome addition to loss-absorption capacity, the complexity of CoCos is a non-negligible risk for this asset class with potential systemic relevance. CoCo investors are exposed to three main risk drivers: (i) the probability of conversion; (ii) the nature of the conversion (permanent or temporary write-down or conversion into equity); and (iii) the risk of coupon deferral or cancellation.

Two main systemic risks are relevant. First, with heterogeneous properties, the liquidity of this market could be tested in the event of correlated selling. The thickness of different tiers of a bank's capital structure becomes relevant in this regard, with the tiers being (from the most junior to the most senior capital instrument) CET1, CoCo AT1, CoCo T2 and non-CoCo T2.

The thickness of each layer beyond potential regulatory minima defines how much more losses an institution can weather before the following more senior layer of capital would see losses. Second, moral hazard risks associated with the issuing bank may be relevant. CoCos can set incentives for banks to overstretch their risk-taking, gambling on the upside of risky exposures without cushioning this risk-taking with additional equity capital. A structural moral hazard risk inherent in CoCos may also be a potential subordination to equity.

The increasing signs of hunt-for-yield behaviour, combined with redirected capital flows from emerging markets to Europe, have benefited this growing market, pushing up valuations. This, in turn, may have allowed banks to raise cheap capital to bolster their balance sheets and improve their leverage ratios. It is however unclear whether current valuation levels internalise all the risks of these complex instruments. A reassessment of risks could not only hamper the building-up of bank capital structures, it could also negatively affect bank funding costs.

Market-related risks

Banks' **interest rate risk** remained material despite a decline in yields at the long end of the euro area yield curve which reversed much of the increase observed over the six-month period covered in the November 2013 FSR. This was accompanied by a flattening of government bond yield curves both in the United States and Europe when compared with the term structures observed at the time of the finalisation of the November 2013 FSR (see Chart S.2.5). Furthermore, there has been a further compression in bond yields of lower-rated sovereigns since late 2013, helped by investors' intensifying search-for-yield behaviour (see Section 2). Against this background, through their direct exposures to higher-yielding debt instruments, euro area banks remain vulnerable to a potential reassessment of risk premia in global markets, in particular via possible valuation losses on their government bond portfolios, to the extent that their positions are not adequately hedged.

In this respect, data on euro area MFIs' **holdings of government debt** show a continuation of home bias in sovereign debt holdings for banks in most euro area countries (see Chart 3.27). In some cases, sovereign bond holdings as a percentage of total assets remain well above pre-crisis levels despite no further increase since mid-2013. While the elevated level of (mostly domestic) sovereign exposures partly reflects "normal" cyclical behaviour of bank balance sheets amid increased risk aversion, it also represents a vulnerability to unexpected increases in sovereign risk premia. Bank-level data from the EBA transparency exercise also suggest that exposures to debt of lower-rated sovereigns are not evenly distributed within the respective countries, with mid-sized or smaller SBGs having higher exposures compared with larger banks (see Chart 3.28).

Regarding other fixed-income exposures, euro area MFIs, on average, further reduced their **holdings of euro area non-financial corporate debt** – albeit with considerable country-level heterogeneity (see Chart 3.29). The share of these securities in banks' balance sheets remains limited in most countries, even in those where banks increased their corporate bond holdings. 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 EME corporate bonds could be more negatively affected under such a scenario.

Finally, MFI statistics on share holdings indicate that euro area banks' exposure to this asset class has, on average, remained broadly unchanged at only 2.6% of euro area MFIs' total assets in March 2014 (see Chart 3.30). That said, bank exposures are widely dispersed across euro area countries, with the share of equity exposures in total assets ranging from 0.3% to 5.2%.

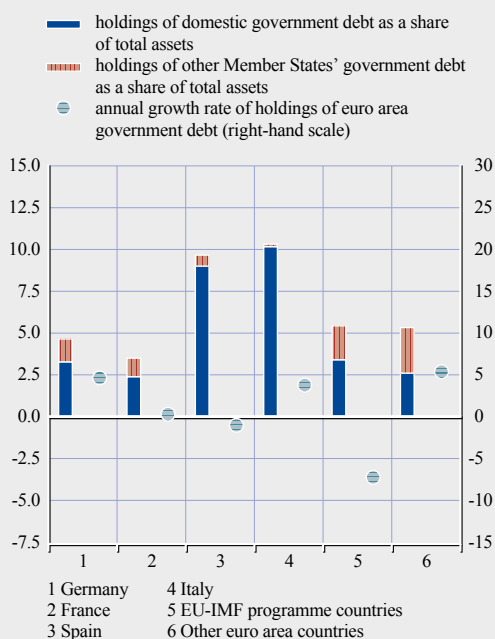
Interest rate risk remains material...

... with some banks still exposed to lower-rated sovereign debt...

... while corporate bond exposures remain limited...

Chart 3.27 MFIs' holdings of domestic and other euro area sovereign debt, broken down by country

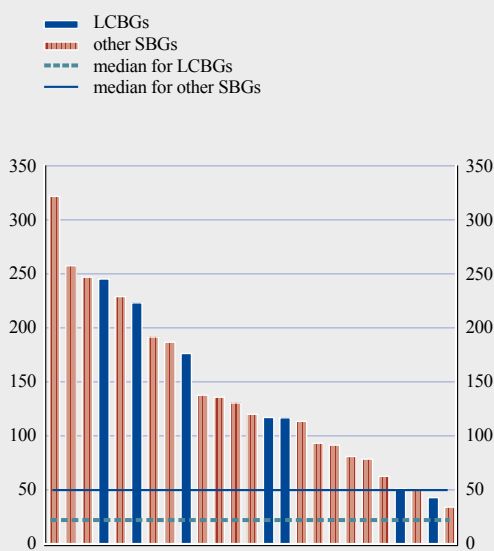
(Mar. 2013 – Mar. 2014; percentage of total assets; annual growth rate)



Source: ECB.

Chart 3.28 Sovereign debt exposures of significant banking groups to vulnerable countries

(Q2 2013; percentage of Tier 1 capital)



Source: EBA.

Notes: Median values are based on all LCBGs and other SBGs covered in the EBA transparency exercise. The blue and orange bars show LCBGs and other SBGs, respectively, that are among the 25 SBGs with the highest exposures.

Chart 3.29 Annual growth rate of euro area MFIs' holdings of debt incurred by non-financial corporations and the share of such holdings in their total assets

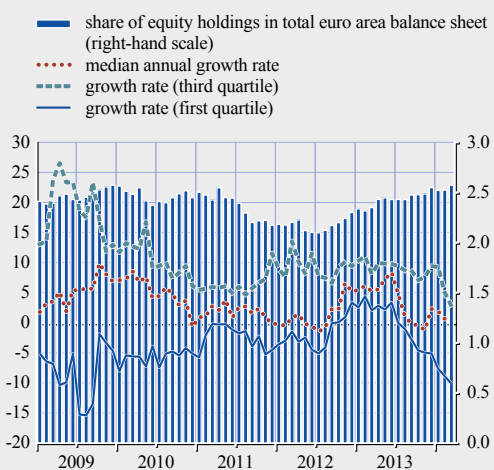
(Q1 2007 – Q4 2013; percentage change per annum; share of total balance sheet)



Source: ECB.

Chart 3.30 MFIs' holdings of shares and other equity

(Jan. 2009 – Mar. 2014; percentage change per annum; share of total balance sheet)



Source: ECB.

Insurers' performance remained stable

Nominal capital buffers at record levels

3.2 THE EURO AREA INSURANCE SECTOR: STILL ROBUST BUT FACED WITH MULTIPLE CHALLENGES

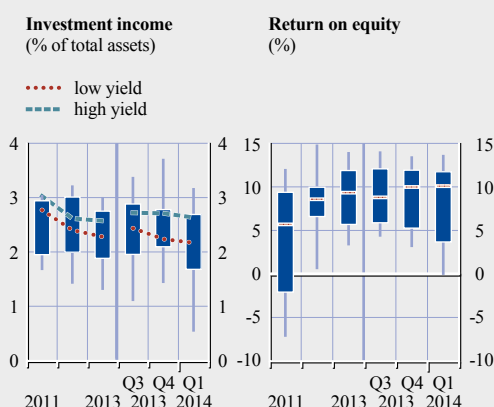
FINANCIAL CONDITION OF LARGE INSURERS¹

The results of large euro area insurers demonstrate a modest but stable performance amid a difficult operating environment. The overall growth of business volumes was muted on account of weak economic activity and intense competition (see Chart S.3.22 in the Statistical Annex). The latter was accentuated for life insurance in some countries through tax changes that worsened its competitive position vis-à-vis other savings products. The reported profitability of large euro area insurers however remained stable, supported by solid investment income and good insurance underwriting results (see Chart 3.31 and Charts S.3.21 and S.3.23). Investment income continued to show resilience to the low-yield environment, although companies headquartered in countries where yields had been low reported marginally lower returns in the second half of 2013. The extent of diversification of large insurers, the ongoing, albeit slow, portfolio adjustment towards higher-yielding investments, and the long-term nature of insurance business, reflected in an investment policy that is less sensitive to market risk, are all likely to have contributed to the limited differences between the two samples.

Capital buffers in the European insurance sector remain at historical highs (see Chart 3.32). The uncertainties related to the economic outlook and the forthcoming regulatory requirements may have contributed to the conservative capital planning demonstrated by large euro area insurers and to the decreasing dispersion especially at the lower end of the sample.² Valuation increases of assets may however have also played a role in stressed countries during the second half of 2013 and the

Chart 3.31 Investment income and return on equity for large euro area insurers

(2011 – Q1 2014; 10th and 90th percentiles, interquartile distribution and median)

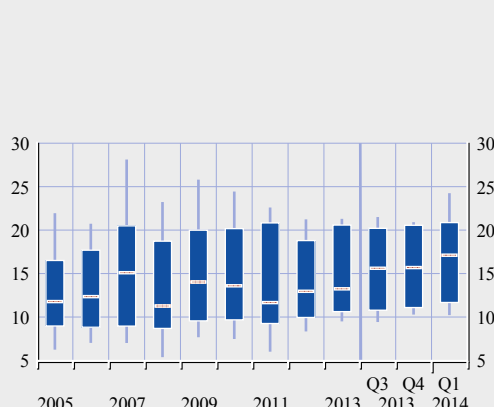


Sources: Bloomberg, individual institutions' financial reports and ECB calculations.

Notes: Investment income excludes unrealised gains and losses. The median is shown separately for companies headquartered in countries where government bond yields have been high (7 companies) and in countries where they have been low (15 companies) over the period of observation.

Chart 3.32 Capital positions of large euro area insurers

(2005 – Q1 2014; percentage of total assets; 10th and 90th percentiles, interquartile distribution and median)



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

Note: Capital is the sum of borrowings, preferred equity, minority interests, policyholders' equity and total common equity.

1 The analysis is based on a varying sample of 21 listed insurers and reinsurers with total combined assets of about €4.9 trillion in 2012, which represent around 79% of the assets in the euro area insurance sector. Quarterly data were only available for a sub-sample (15) of these insurers.

2 The recent advances in Solvency II negotiations are likely to have reduced regulatory uncertainty to a significant degree lately. See Section 3.4 on regulatory developments.

first quarter of 2014, following the decrease in sovereign yields and the market-consistent treatment of assets, but not of liabilities, in place in many jurisdictions.

INSURANCE SECTOR OUTLOOK: MARKET INDICATORS AND ANALYSTS' VIEWS

Market-based indicators suggest a relatively benign outlook for the euro area insurance sector over the next year, notwithstanding a still muted economic outlook and challenges presented by the persisting low yields of highly rated government bonds. The market pricing of insurance companies continued its steady improvement (see Chart S.3.30). The decreasing trend in the perceived credit risk across large insurers has also continued (see Chart S.3.28).

Analysts' views tend to mirror those of market-based indicators (see Chart 3.33). The outlook is in general dominated by a baseline expectation of slowly increasing yields on highly rated government bonds and a continued stabilisation in the stressed countries. The latter has in particular resulted in recent revisions of outlooks by rating agencies for some of the insurers in the concerned jurisdictions.

Analysts also note that although portfolio adjustments may increase credit and liquidity risk that insurers are exposed to, the move is likely to remain small scale, and thus diversification and illiquidity premium benefits are expected to continue to outweigh the risks in the short-to-medium term. The high level of capitalisation in the insurance sector and the perception of reduced regulatory and other uncertainties have raised expectations of increased dividend payments.

On the negative side, analysts expect the weak economic growth to impact underwriting income, as attracting new business is difficult for some life insurers in particular. Non-life insurance and reinsurance are expected to suffer from general price decreases, and competition from insurance-linked securities is seen as dampening particularly reinsurance premium income in the future.

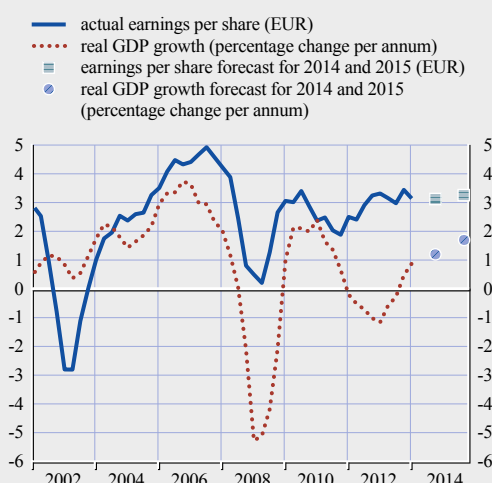
Market indicators stable

Analysts expect continued convergence of yields...

... but muted new business and pricing hamper profits

Chart 3.33 Earnings per share of selected large euro area insurers and real GDP growth

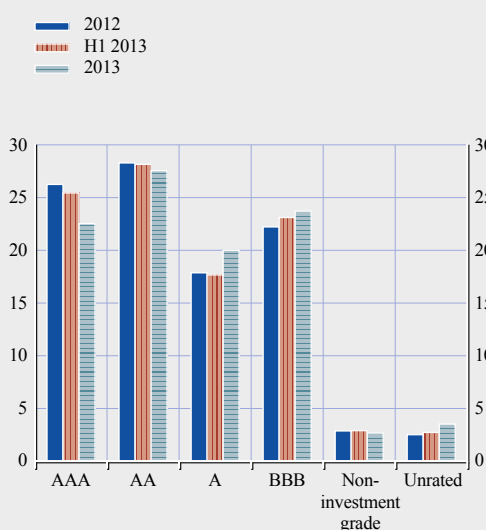
(Q1 2002 – Q4 2015)



Sources: European Commission, Thomson Reuters and ECB calculations.

Chart 3.34 Bond investments of selected large euro area insurers split by rating categories

(weighted average; percentage of total bond investments)



Sources: Company reports, JPMorgan Cazenove and ECB calculations.

Note: Based on the available data for 11 large euro area insurers.

Despite the decreased stress in government bond markets...

... low yields are likely to strain income in the medium term

Portfolio adjustment to low yields remains slow

INVESTMENT RISK

Investment activity of large euro area insurers is concentrated in government and corporate bond markets. Despite some as yet limited signs of portfolio shifts towards alternatives, investments in structured credit, equity and commercial property still remained at low levels on aggregate at year-end 2013 (see Chart S.3.25). The fixed-income portfolio in addition tends to be dominated by highly rated bonds (see Chart 3.34). Although some variation can be observed in the underlying data, the overall picture implies a generally significant investment exposure to the low-yield environment for large euro area insurers, irrespective of the country of residence.

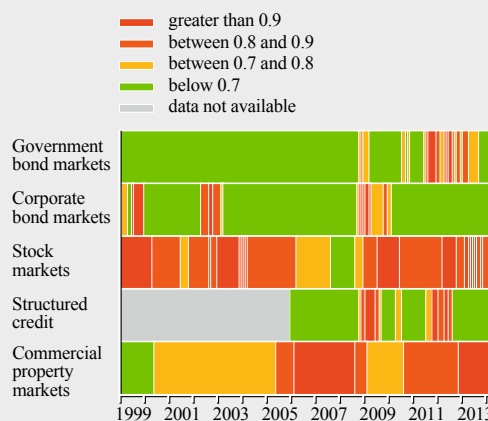
Given the high exposure to highly rated sovereign bonds, it is interesting that the investment uncertainty map signals some easing in these markets, although the latest data indicate some reverse movement (see Chart 3.35). This easing derives from the decreased volatility, coupled with moderately higher yields when compared with the recent historical lows. A continued moderate interest rate rise would have a generally positive impact on the economic solvency of insurers, attributable to the effect of the higher discount rates on the liabilities side. The potentially negative impact of an interest rate rise on prudential ratios in jurisdictions where liabilities are not treated in a market-consistent way would likely remain contained, not least owing to the current comfortable solvency levels. The pace of such a rise would be important for gauging the impact on capital, as a slower pace would allow insurers more time to readjust their portfolios. By contrast, a return to record low yields would aggravate the situation considerably not only in terms of economic solvency but in particular in terms of investment income.

Despite the decreased stress in the government bond markets, the income impact of any eventual normalisation of interest rates on highly rated government bonds is likely to remain muted for some time to come. First, the yields still remain at very low levels. Second, as hold-to-maturity strategies shield insurers from market risk to some extent, they also imply a slow transition to higher-yielding products once yields rise. Although not likely to be critical for the large euro area insurers in the short-to-medium term, the current level of yields continues to constitute a significant strain on small and medium-sized, typically non-diversified, life insurers in the most concerned jurisdictions, in particular if they offer fixed guarantees to policyholders.

Portfolio adjustments to diversify away from low-yielding products appear to be taking place slowly. A slightly increasing share of the overall portfolio of euro area institutional investors is invested in mutual fund shares, while an increase in the share of government bonds in the portfolio can be observed in the course of the past 12 months (see Chart 3.36). The balance sheets

Chart 3.35 Investment uncertainty map for the euro area

(Jan. 1999 – Apr. 2014)



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.

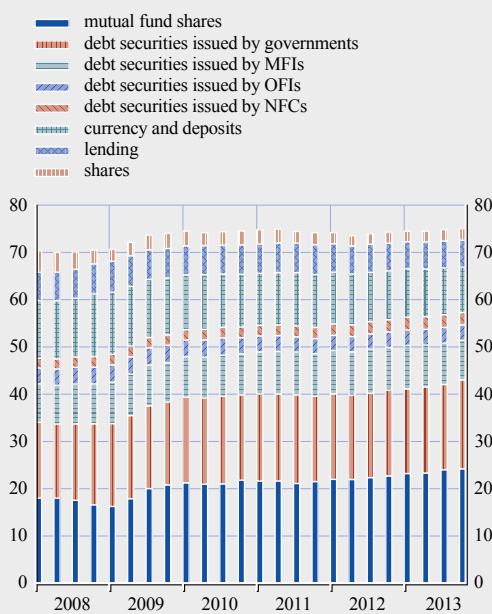
of selected large euro area insurers display some differentiation as regards the low- and high-yield environments; however, they indicate that the share of government bonds in the investment portfolio has increased during the second half of 2013 also for insurance companies domiciled in low-yield environments (see Chart 3.37). Individual company data show that domestic bond holdings in low-yield countries have not fallen markedly and, in some cases, have even increased. The observations suggest that besides the return on investment, also other factors such as home bias and geographical asset-liability matching, regulation or group-internal strategies within conglomerates, may have played a role in the investment decisions of institutional investors.

Finally, exposures of the insurance sector to credit risk protection selling have remained modest at the global level. Such non-traditional activities may however become an interesting source of income should the low-yield environment continue to prevail, and therefore warrant continued monitoring.³ The share of direct lending by institutional investors to counterparties, another bank-type activity which requires dedicated risk management, has been on the rise in some euro area countries. On aggregate the level remains low, however (see Chart 3.36). The realised developments indicate that notwithstanding the anecdotal evidence that insurers are increasing direct lending activities and investing in mortgages or infrastructure projects, the amounts committed so far remain modest.

All in all, the evidence points towards an ongoing gradual adjustment of investment strategies by euro area insurers in an environment of low and uncertain returns on investment. At the same time, the process continues to be slow and directed by what could be characterised as a significant home bias in investment strategies. As a result, most euro area insurers and pension funds remain significantly exposed to the low-yield environment, which constitutes the key risk in the medium-to-long term. The moderate pace of developments is still likely to lead to positive diversification benefits before becoming a threat to financial stability, and in some cases regulatory action to readjust potentially overly strict requirements on specific investment products could result in improved market outcomes.⁴ Notwithstanding these benefits, the ongoing transition may also imply an increased market, credit and liquidity risk in the future and should therefore continue to be monitored closely in parallel.

Chart 3.36 Financial assets of euro area insurance companies and pension funds

(Q1 2008 – Q4 2013; percentage of total financial assets)



Source: ECB data from balance sheets of insurance companies and pension funds.

Notes: MFIs refer to monetary financial institutions, NFCs to non-financial corporations and OFIs to other financial intermediaries. Counterparties reside in the euro area. The remaining assets (not pictured in the chart) consist of financial assets with counterparties residing outside the euro area.

*Risks from credit
risk protection
remain small*

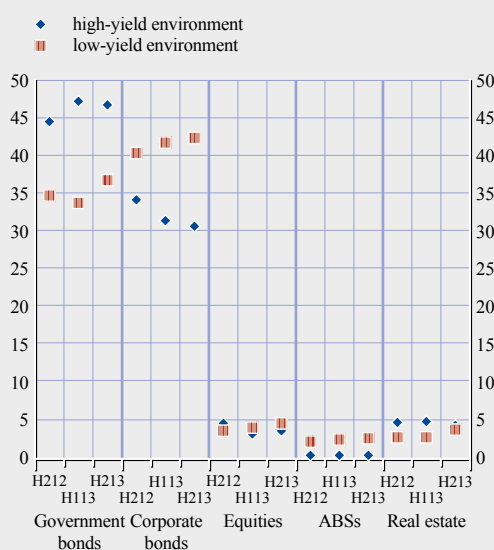
*Adjustment to low
yields slow and with
home bias*

³ The proposed policy measures applicable to global systemically important insurers (G-SIIs) are targeted at containing this risk, among others. See http://www.financialstabilityboard.org/publications/r_130718.pdf

⁴ EIOPA's proposal to introduce a more granular treatment of securitisations is an important initiative in this regard. See "Discussion paper on standard formula design and calibration for certain long-term investments", 19 December 2013, available at <https://eiopa.europa.eu>. See also Box 11 on the revival of qualified securitisation for a more general view of the issue.

Chart 3.37 Investment mix for selected large euro area insurers

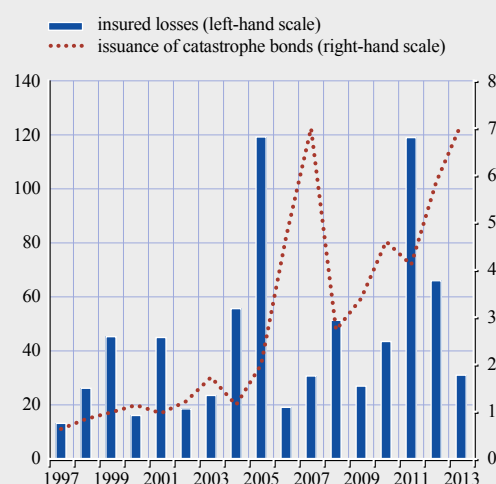
(H2 2012 – H2 2013; percentage of total investments; medians)



Sources: JPMorgan Cazenove, individual institutions' financial reports and ECB calculations.
Notes: Based on consolidated financial accounts data. The equity exposure data exclude investment in mutual funds. Insurers are divided into high and low-yield categories on the basis of the country of residence.

Chart 3.38 Insured catastrophe losses and catastrophe bond issuance

(1997 – 2013; USD billions)



Sources: EQECAT, Munich Re, Swiss Re, Guy Carpenter and ECB calculations.

UNDERWRITING RISK

Underwriting risks remain key short-term risks for insurers, given the significant impact natural catastrophes can have on capital. Inadequate pricing of policies and life insurance guarantees constitutes another major source of risk in the medium-to-long term, as premiums collected and the return on investment may not suffice to pay the contracted liabilities. Recent developments in the markets imply strains for both the reinsurance and life insurance business models as regards long-term challenges – mainly impacting profitability for the time being, but they may in the future constitute a solvency issue for some smaller, non-diversified players in the sector.

Low claims from catastrophe losses have supported the accumulation of capital in the non-life and reinsurance sectors (see Chart 3.32). Insured catastrophe losses remained well below the ten-year average in 2013, the major single event having been the hailstorms in Germany in June and July with estimated insured losses of USD 4 billion (see Chart 3.38). The Atlantic hurricane activity also remained low in 2013.

Strong issuance of insurance-linked securities, such as catastrophe bonds, has further increased capital inflows into reinsurance activities (see Chart 3.38). After a strong first half of 2013, the year-end saw a surge in monthly issuance. As a consequence, the total issuance for the year 2013 reached the all-time high of 2007. The increased interest by institutional investors, but also hedge funds, in the presence of low returns on more traditional investments is also reflected in the decreasing yield on the products.

Low insured catastrophe losses and increased issuance of alternative capital...

*... have dented
non-life pricing*

The record capital buffers and the increased inflow of funds into insurance-linked securities such as catastrophe bonds have resulted in some overcapacity in the market, which has been reflected in the generally muted price developments for non-life insurance and mostly declining prices of reinsurance policies. Reinsurance prices for natural catastrophes in particular declined almost universally around the globe. The overall impact on the underwriting profits of European insurers is however expected to be subdued. First, large euro area (re)insurers are in general well diversified geographically and across business lines. The pricing of motor insurance, for example, is continuing on its upward trend in many core European markets, and some loss-impacted areas in Europe also saw increasing reinsurance prices. Second, traditional reinsurance has some distinctive benefits for insurers in terms of product design and is therefore likely to be able to defend its market position against the standardised catastrophe bonds.⁵ Indeed, reinsurers seem to have increased their efforts to produce more tailored offers to their customers and put the focus on product innovation, including developing solutions for risks that currently remain largely uninsured.⁶

Despite somewhat higher yields on highly rated government bonds, the overall level remains very low and in some jurisdictions continues to strain the business models of small and medium-sized life insurers that offer fixed policyholder guarantees, in particular. These companies are also typically worse placed to increase the share of alternative investments such as infrastructure loans owing to lesser financial and risk management capacity, and may be less flexible in the short run in terms of innovation and product design. The problem manifests itself in different ways, depending on the operational environment in each jurisdiction and the exact business model deployed. A protracted period of low yields could result in significant solvency problems in 2023 for some of the German life insurers, which have typically offered generous guarantees to policyholders in the past.⁷

*Life business model
strained by low yields*

A guarantee may constitute a distinctive advantage of a life insurance policy in comparison to other savings products, the lowering of which may significantly reduce its attractiveness and thus threaten new business or even risk lapses on existing policies. Competitive pressure may aggravate the problem further. In some jurisdictions, competition from banking products, sometimes accentuated through tax initiatives that are disadvantageous for life insurance, has already resulted in increasing lapses and therefore shrinking markets (see Chart S.3.22). Low GDP growth sometimes compounds the impact. Decreasing guarantees in such an environment may indeed be risky.

Continuing difficulties in attracting new business and retaining existing clients could result in a re-emergence of liquidity risk, in particular if cash demands for lapses and surrenders are increased at the same time as investments in alternative, potentially less liquid, products gain pace in the low-yield environment. While not constituting a major or widespread risk at present, also owing to the long-term nature of contracts and the penalties in place for early redemption, the liquidity situation should be monitored as its pace of change can be significantly faster than that of other risks to the insurance sector. In any case, the developments underline the need to revisit life insurance business models to ensure that they are sustainable and not based on unrealistic assumptions about investment returns. In some countries, supervisors have introduced additional provisions to cater for the specific risks arising from the interaction of the low-yield environment and the life insurance business model. Although such provisions may further add to the short-term strains on the industry, they are relatively limited compared with risks that threaten to arise in the long term.

⁵ For example, a reinsurance policy can be better tailored to cover specific risks and can have renewable features.

⁶ Such risks include aspects of natural catastrophes, terrorism and cyber risk, among others.

⁷ See “Bridging low interest rates and higher capital requirements”, *Financial Stability Review*, Deutsche Bundesbank, 2013, pp. 73-90. In an extreme stress scenario, 32 companies which represent a 43% market share would not meet the Solvency I capital requirements. In the baseline, only one company would no longer meet the own funds requirements pursuant to Solvency I. An intermediate, Japan-style scenario resulted in 12 companies which represent a 14% market share becoming undercapitalised by 2023.

A quantitative impact assessment is not comparable with micro-prudential stress tests or the EBA/SSM EU-wide stress-testing exercise...

... and involves three macro-financial shocks mapped to sources of systemic risk

3.3 A QUANTITATIVE ASSESSMENT OF THE IMPACT OF SELECTED MACRO-FINANCIAL SHOCKS ON FINANCIAL INSTITUTIONS

The assessment of the impact of macro-financial shocks on euro area financial institutions is based on a macro-prudential simulation exercise involving top-down stress-testing tools. For a number of reasons, the results are not comparable with those of micro-prudential stress tests or the ongoing EU-wide stress-testing exercise being carried out by the European Banking Authority (EBA) and the Single Supervisory Mechanism (SSM). First, the shocks discussed in the Financial Stability Review (FSR) do not form a comprehensive scenario, but should rather be viewed as a series of stand-alone sensitivity tests. Second, whereas the FSR quantitative assessment is a top-down exercise, the ongoing EBA/SSM EU-wide stress-testing exercise is essentially a bottom-up stress test.⁸ This difference in overall approach also results in differences in the assumptions and tools used to translate the impact of the shocks into bank solvency ratios. In addition, the capital measure used in the FSR assessment is the EBA core Tier 1 ratio, while the EBA/SSM stress test will use a common equity Tier 1 measure, reflecting transitory arrangements as of end-2016. The sample of the institutions subject to the assessment also differs substantially between the two exercises⁹ and, lastly, the horizon of the FSR assessment covers two years, while the EBA/SSM stress test covers three years.

Despite these fundamental differences, the combined effects on activity and banks' solvency of the various macro-financial shocks considered in the FSR exercise broadly correspond, over the relevant two-year horizon, to those that can be expected from the EBA/SSM adverse scenario.¹⁰

This section provides a quantitative assessment of three chains of events which start with macro-financial shocks that map the main systemic risks presented in the previous sections of this FSR (see Table 3.1):

- (i) *the risk of an abrupt reversal of the global search for yield, amid pockets of illiquidity and likely asset price misalignments* – reflected by a sharp increase in investor risk aversion worldwide, leading to falling stock and corporate bond prices, to reduced access of banks to wholesale debt financing and to deposit outflows, and to lower euro area external demand;
- (ii) *continuing weak bank profitability and balance sheet stress in a low inflation and low growth environment* – materialising through negative shocks to aggregate supply and demand in a number of euro area countries;
- (iii) *the risk of a re-emergence of sovereign debt sustainability concerns, stemming from insufficient common backstops, stalling policy reforms, and a prolonged period of low nominal growth* – materialising through an increase in long-term interest rates and declining stock prices.

⁸ More details about the methodology, scenarios and process of the EBA/SSM EU-wide stress-testing exercise can be found in the EBA and SSM communications released on 29 April 2014.

⁹ 128 euro area banks are participating in the EBA/SSM stress test. This section presents an assessment of the impact of the adverse shocks on a smaller group of 17 large and complex banking groups (LCBGs).

¹⁰ 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. The results are based on publicly available data up to the fourth quarter of 2013 (or a few quarters earlier) for individual banks and insurance companies, as well as on bank exposure data disclosed in the 2013 transparency exercise coordinated by the EBA.

Table 3.1 Mapping main systemic risks into adverse macro-financial shocks

Risk	Shock	Key assumptions driving impact on GDP
Abrupt reversal of the global search for yield, amid pockets of illiquidity and likely asset price misalignments	Global risk aversion shock	Increasing risk aversion and deteriorating investor confidence worldwide, fuelling stock price declines, widening of corporate bond spreads, and increases in money market rates and in the cost of funding of the private sector
Continuing weak bank profitability and balance sheet stress in a low inflation and low growth environment	Weak economic growth shock	Reduction in investment and consumption as well as increasing user cost of capital and falling nominal wages
Re-emergence of sovereign debt sustainability concerns, stemming from insufficient common backstops, stalling policy reforms, and a prolonged period of low nominal growth	Sovereign debt shock	An aggravation of the sovereign debt crisis fuelling the increase in sovereign bond yields and stock price declines

Source: ECB.

MACRO-FINANCIAL SHOCKS AND THEIR IMPACT ON GDP

The three adverse shocks described below and summarised in Tables 3.1 and 3.2 display the key driving factors at play, as well as the overall impact on euro area GDP, with the latter giving an indication of the transmission of the respective shocks to the solvency of euro area banks. The impact of the adverse shocks is assumed to be felt from the beginning of 2014, consistent with the reference date for the balance sheet and capital data of the financial institutions.

Increased risk aversion

The first adverse chain of events concerns the potential for a mispricing of risk across various market segments around the world and is modelled as an abrupt reversal of investor confidence and an increase in risk aversion worldwide. The prices of financial assets would decline, and an ensuing global recession would have negative implications – via trade and confidence spillovers – for the global economic outlook, including euro area foreign demand.¹¹ Additionally, the improvement in euro area bank funding conditions, observed since mid-2013, would be reversed, especially in the countries where the sovereign remains under stress. This would manifest itself through increases in money market interest rates and credit costs for the private sector in the EU Member States. First, an increase in the three-month EURIBOR captures the risk of worsening funding conditions in money markets. It kicks in gradually, starting in the first quarter of 2014. The gradual increase mirrors the assumed increasing uncertainty about the quality of bank credit portfolios. 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 cost of capital) and to *interest margins on loans to households* (via the financial wealth of households) is considered.¹² Lastly, the increase in risk aversion is assumed to cause corporate bond spreads to rise markedly from their current low levels.¹³

An abrupt decrease in investor confidence, leading to a decline in the prices of financial assets and a deterioration of bank funding conditions in the euro area ...

On the basis of these assumptions, US stock prices are assumed to fall by 24% in the first quarter, and to gradually recover thereafter, remaining 13% below the baseline at the end of 2015. The

... with a negative impact on euro area external demand and, eventually, euro area GDP

11 The impact on euro area foreign demand is derived with the National Institute Global Econometric Model (NiGEM).

12 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 order to reflect their different risk of being substantially hit by the adverse macroeconomic developments. The magnitudes of the shocks are derived on the basis of market and expert assessment of severe macroeconomic risks.

13 The increase in the corporate bond rates has been calibrated using the same simulation approach as that applied to government bond yields under the sovereign debt shock. An increase in risk aversion could also affect sovereign yields, but this is treated separately under “Sovereign debt shock”.

The second chain of events is based on a shock to aggregate supply and demand

resulting negative impact on euro area external demand, expressed in percentage changes from baseline levels, amounts to -2.4% at the end of 2014 and -2.9% at the end of 2015. The simulated widening of corporate bond spreads corresponds, on average, to a haircut of around 4.2% on banks' corporate bond holdings.

The impact of the fall in external demand and the bank funding stress on the euro area economies is derived using stress-test elasticities.¹⁴ The overall impact on euro area real GDP, expressed in deviations from baseline growth rates, is -1.0 and -1.6 percentage points in 2014 and 2015 respectively. However, the impact differs considerably across the euro area countries, depending in particular on their export orientation, their exchange rate sensitivity and the severity of bank funding constraints.

Weak euro area growth

In order to capture the risk of weaker than anticipated domestic economic activity in many euro area countries, this chain of events involves country-specific reductions in aggregate supply, via increases in both the user cost of capital and nominal wages, and in aggregate demand, via a slowdown in both fixed investment and private consumption. The calibration of the country-specific demand and supply effects was based on a quantitative and qualitative ranking of the most pertinent risks at the country level.¹⁵ The impact on GDP is derived using the above-mentioned stress-test elasticities.

These assumptions result in an overall impact on euro area real GDP growth, expressed in deviations from baseline growth rates, of -0.6 and -1.0 percentage point in 2014 and 2015 respectively. Again, the real economic impact varies considerably across euro area countries, with countries under sovereign stress affected most negatively.

Sovereign debt shock

Sovereign stress has been at the heart of the crisis. This chain of events attempts to capture such stress with a rise in euro area sovereign bond yields to elevated levels, while taking into account co-movements with other asset prices (in particular, stock prices). The bond yields rise in all euro area countries, and are calibrated at a 5% marginal probability level, independently for each individual country.¹⁶

The design of this shock is based on the following assumptions. First, an increase in long-term government bond yields is assumed for all euro area countries. The weighted average euro area long-term interest rate rises by 117 basis points. Leaving aside the substantial impact on Greek long-term government bond yields, the increase in government bond yields across euro area countries ranges from 53 to 214 basis points. Second, the shape of national yield curves on the cut-off date is used to transpose the simulated shock across the term structure of interest rates. Third, the increase in bond yields has spillover effects on stock prices, ranging from -4.4% to -26% across euro area countries (the euro area weighted average amounts to -12%). The adverse movements in bond yields and stock prices lead to an immediate and persistent increase in short-term market interest rates.¹⁷ Lastly, the increase in ten-year government bond yields determines the country-specific widening of sovereign credit default swap (CDS) spreads.¹⁸

In the third chain of events, euro area sovereign bond yields rise to abnormally high levels...

... accompanied by a sharp decline in stock prices and an increase in both short-term interest rates and sovereign CDS spreads

14 Stress-test elasticities are a simulation tool that is based on impulse response functions (taken from ESCB central banks' models) of endogenous variables to predefined exogenous shocks. They incorporate intra-euro area trade spillovers.

15 The aggregate supply and demand effects are calibrated in line with the historical volatilities of relevant economic variables in each country.

16 The calibration of the sovereign bond yield increase is based on the simulated 95th percentile of the distribution of daily compounded changes in ten-year government bond yields and stock prices observed between 3 August 2012 and 31 December 2013. The sample has been chosen to account for the change in markets after the announcement of Outright Monetary Transactions by the ECB on 2 August 2012.

17 The same simulation procedure as that used for calibrating the long-term bond yield increase across euro area countries has been applied to the three-month EURIBOR.

18 These are based on estimated regressions of sovereign CDS spreads on long-term government bond yields.

Table 3.2 Overall impact on euro area GDP growth under the baseline scenario and adverse shocks

(percentages; percentage point deviations from baseline growth rates)

	2013	2014	2015
Baseline (annual growth rates given in the European Commission's forecast)	-0.4	1.2	1.7
<i>Percentage point deviations from baseline growth</i>			
Global risk aversion shock		-1.0	-1.6
Weak economic growth shock		-0.6	-1.0
Sovereign debt shock		-0.2	-0.4

Sources: European Commission, ECB and ECB calculations.

These factors lead to country-specific increases in sovereign bond yields that in turn result in marking-to-market valuation losses on euro area banks' sovereign exposures in the trading book and the available-for-sale (AFS) portfolio.¹⁹ In addition, the increase in sovereign credit spreads also raises the cost of euro area banks' funding. Moreover, the country-specific effects on interest rates and stock prices also have direct implications for the macroeconomic outlook, which in turn affects banks' credit risk. The impact on euro area real GDP amounts to -0.2 and -0.4 percentage point deviations in 2014 and 2015 respectively.²⁰

The combined impact of the three macro-financial shocks amounts to a 4.8 percentage point deviation from the baseline scenario. The EBA/SSM adverse scenario is only slightly more severe, with a total deviation from the baseline of 5.0 percentage points over the two-year horizon.

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 three shocks on euro area LCBGs' profit and loss accounts (and solvency positions) is obtained from projections of the main variables determining banks' solvency, such as credit risk, profits and risk-weighted assets.²¹ Details of the technical assumptions for all relevant variables are contained in Table 3.3. The overall impact is expressed in terms of changes to banks' core Tier 1 capital ratios.

Under the **baseline scenario**, euro area LCBGs' average core Tier 1 capitalisation is projected to increase from 12.0% in the fourth quarter of 2013 to 12.5% by the end of 2015 (see Chart 3.39). The overall improvement in the solvency position under the baseline mainly reflects that the projected accumulation of pre-provision profits more than offsets the projected loan losses. The average development of euro area LCBGs' solvency positions, however, masks substantial variations across individual institutions and euro area countries.

All three **adverse shocks** discussed above would have a notable adverse impact on euro area LCBGs' solvency, with average core Tier 1 capital ratios declining by between 1.1 and

This implies losses on sovereign exposures and an increase in banks' cost of funding and credit risk

Changes in credit risk and profits, implied by adverse shocks, impact banks' solvency positions

Under the baseline scenario, the average core Tier 1 capital ratio is projected to increase from 12.0% to 12.5% at the end of 2015

The global risk aversion shock leads to an average core Tier 1 capital ratio of 9.9% at the end of 2015

19 By contrast, securities held in the banking book are assumed not to be affected by the asset price shock. The valuation haircuts are calibrated to the new levels of government bond yields, using the sovereign debt haircut methodology applied in the EBA's 2011 stress-test exercise. The exposures held in the AFS portfolio are subject to a prudential filter, which by the end of 2015 would lead to a recognition of 40% of the overall mark-to-market losses in the regulatory capital.

20 The impact of these shocks on euro area economic growth was again derived on the basis of stress-test elasticities.

21 The balance sheet and profit and loss data are based on banks' published financial reports as well as supervisory information disclosed in the context of the EBA's 2013 EU-wide transparency exercise. To the extent possible, the data have been updated to cover the period up to the fourth quarter of 2013. The sample includes 17 euro area LCBGs. Data are consolidated at the banking group level. Bank balance sheets are assumed to remain unchanged over the simulated horizon, except when it is explicitly assumed otherwise, as in the global risk aversion shock.

Table 3.3 Technical assumptions regarding the individual risk drivers of banks' solvency ratios

Credit risk	Changes to probabilities of default and loss given default estimated by exposure types (i.e. loans to non-financial corporations, retail and commercial real estate loans). ¹⁾ Projected changes at the country level applied to bank-specific loss rates to calculate the expected losses. ²⁾ For exposures to sovereigns and financial institutions, provisioning is based on rating-implied probabilities of default, similar to what was done in the EBA's exercise. ³⁾
Net interest income	Based on a loan-deposit margin multiplier approach to assess the impact of interest rate changes. ⁴⁾ Changes in short-term loan and deposit rates are then multiplied by the outstanding amounts of loans and deposits for each bank at the beginning of the horizon. To account for a marginal pricing of deposit rates, which have risen sharply in many euro area countries in recent years, changes in the short-term rate have been adjusted by adding the spread between the three-month money market rate and new business time deposit rates at country level as at end-December 2013.
Other operating income	Projected annual trading income corresponds, for each bank, to its average trading income over the period 2011-13 under the baseline, and to the average of the five years (2009-13) under the adverse shocks. These historical averages are reduced, over the stress-test horizon, by one standard deviation (baseline) or two standard deviations (adverse shocks). The mark-to-market losses on sovereign and corporate bond exposures reflect the projected interest rates and credit spreads, while taking into account a harmonised phasing-out of prudential filters on exposures held in the available-for-sale portfolio as required under the CRR. Fee and commission income is assumed to remain constant in nominal terms.
Taxes and dividends	Tax and dividend assumptions are bank-specific, using the historical average ratio of positive tax payments to pre-tax profits over a three-year period and the median dividend-to-net income ratio over the same period.
Risk-weighted assets	Risk-weighted assets are calculated at the bank level, using the Basel formulae for banks following the internal ratings-based approach and assuming fixed losses given default. ⁵⁾

Source: ECB.

1) For the forecasting methodology applied, see *2011 EU-wide EBA stress test: ECB staff forecasts for probability of default and loss rate benchmark*, ECB, 4 April 2011.

2) The starting levels of both the probabilities of default and the loss given default were calibrated conservatively based on publicly available data, including financial reports of individual banks and disclosures made in the course of the EBA transparency exercise.

3) See *2011 EU-wide Stress Test: Methodological Note – Additional Guidance*, EBA, June 2011.

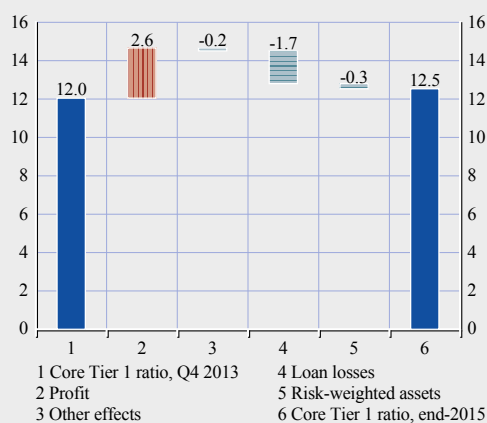
4) See Box 7 of the December 2010 FSR and Box 13 of the June 2009 FSR for further details.

5) Risk-weighted assets are defined according to the so-called Basel 2.5 (or CRD III) framework, including higher risk weights on re-securitisations in the banking book and certain market risk elements in the trading book.

2.6 percentage points relative to the baseline scenario by the end of 2015 (see Chart 3.40). Under the impact of the weak euro area growth shock and the sovereign debt shock, euro area LCBGs'

Chart 3.39 Average contribution of changes in profits, loan losses and risk-weighted assets to the core Tier 1 capital ratios of euro area LCBGs under the baseline scenario

(percentage of the core Tier 1 capital ratio and percentage point contribution)

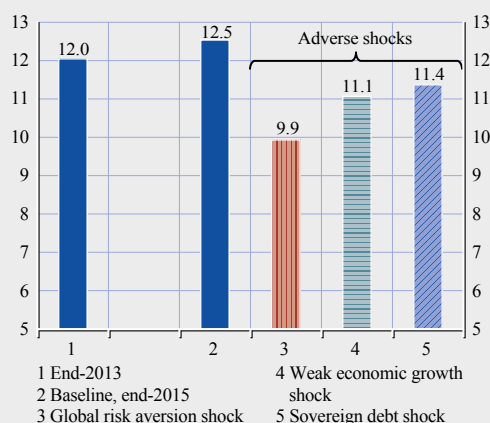


Sources: Individual institutions' financial reports, EBA, ECB and ECB calculations.

Note: Due to rounding, contributions may not add up to the totals.

Chart 3.40 Average core Tier 1 capital ratios of euro area LCBGs under the baseline scenario and adverse shocks

(percentages; average of euro area LCBGs)



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

Table 3.4 Reverse stress-test results

(multipliers)			
Shock	Multiplier necessary to bring the core Tier 1 capital ratio of one-third of the banks to below 6%		Multiplier necessary to bring the core Tier 1 capital ratio of one-third of the banks to below 8%
Global risk aversion shock	9.7		7.0
Weak economic growth shock	13.8		12.1
Sovereign debt shock	37.9		35.9

Sources: ECB and ECB calculations.

core Tier 1 capital ratios would decline to 11.1% and 11.4%, respectively, by the end of 2015. The global risk aversion shock would produce the most negative result, an average core Tier 1 capital ratio of 9.9% by the end of 2015. Considering the combination of these shocks, the overall negative effect on the capital ratios should be close to 4 percentage points.

The main driving factors under the three shocks are the increase in loan losses and lower or negative retained earnings with respect to the baseline. Notably, under the sovereign debt and the global risk aversion shocks, the decline in profits is relatively strong, owing to mark-to-market losses, the impact of which is amplified by the gradual phasing-out of prudential filters. Under the adverse economic growth shock, the adverse impact largely originates from high loan losses.

The likelihood of capital shortfalls under the adverse shocks is low by design, as they are based on low-probability events.²² In this respect, it is useful to consider a **reverse stress test** whereby the size of the shock needed to drive the core Tier 1 capital ratio of, for example, one-third of the euro area banks in the sample down to a pre-specified threshold is derived for each of the shocks.²³ If macro-financial shocks are mild, it is necessary to scale up the intensity of the shocks in the reverse stress test in order to lower banks' core Tier 1 ratio below a reference threshold (e.g. 6% or 8%).

Considering a threshold core Tier 1 capital ratio of 6%, *the global risk aversion shock is found to be the most severe among the three shocks. However, even that shock would need to be scaled up by a very large multiplier of around 9.7 to bring the ratio of more than one-third of the banks to below 6% (see Table 3.4).* By contrast, the weak economic growth shock requires a higher reverse stress test multiplier of 13.8, while the multiplier needed for the sovereign debt shock is substantially larger, standing at almost 40.

POTENTIAL INTERBANK CONTAGION DUE TO BANK FAILURES

The simulated deterioration in a bank's solvency position under the adverse shocks may spill over to other banks in the system. 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.

Interbank contagion effects could be amplified further if, in response to distressed interbank loans, banks were to sell their securities holdings to fill the gap in their balance sheets. This may give rise to fire-sale losses, which could adversely affect the marking-to-market valuation of their securities portfolios and further depress their capacity to fully honour interbank liabilities. If these actions

Cross-checking results with a reverse stress test

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

²² In order to rank the systemic risks considered in the various shocks, it is not sufficient to focus solely on the solvency ratios. The probability of occurrence attached to each of the shocks should also be considered in order to make the results fully comparable.

²³ To derive the factor ("multiplier") that is needed for each shock to reach a specific median core Tier 1 capital ratio, the amplified macro-model output is fed through the credit risk and profit satellite models, which in turn are linked to the balance sheets of individual institutions.

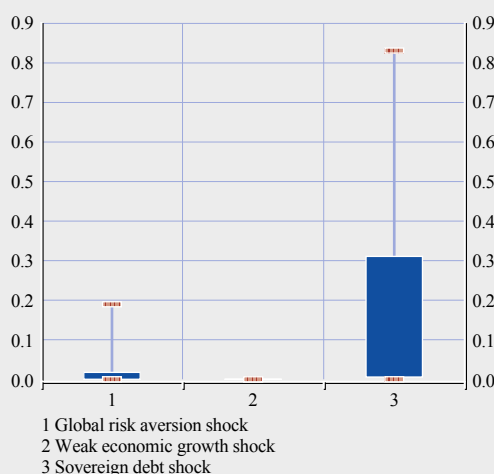
are taken by many banks at the same time, they would magnify the implied impact on market prices of the assets being sold.

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 contagion effects throughout the financial system.²⁴ The interbank contagion results, derived by applying such a methodology to the three adverse shocks considered above, are illustrated in Chart 3.41.²⁵

For the simulated networks with the strongest contagion effects, the system-wide core Tier 1 capital ratio falls by about 0.01 percentage point in some countries (see Chart 3.41). However, should the banks respond to capital pressure by shedding assets at fire-sale prices, the capital shortfalls would be larger.

Chart 3.41 “Worst case” basis point reduction in the core Tier 1 capital ratio of euro area banks due to interbank contagion: dispersion across simulations

(basis point reduction of the core Tier 1 capital ratio; 10th and 90th percentiles and interquartile range)



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

Note: Interquartile range represents the 25th to 75th percentiles of the cross-country contagion effects under the most severe (upper 10th percentile) of 20,000 simulated interbank networks.

ASSESSING THE RESILIENCE OF EURO AREA INSURERS

Major risks are quantified using a market-consistent approach for assets and liabilities...

The assessment of the impact of the three main euro area financial stability risks on large euro area insurers is conducted using publicly available data for 13 major euro area insurance groups up to the fourth quarter of 2013. It relies on a market-consistent approach to the quantification of risks and is applied to the *assets* and *liabilities* of insurance corporations. Given the strong heterogeneity of the individual reporting in this sector, the approach aims to spell out the main risks in economic terms, rather than trying to gauge the impact in terms of prudential solvency ratios.²⁶

The following market, credit and underwriting risks are assessed: (i) a change in interest rates; (ii) a fall in equity and property prices²⁷; (iii) a deterioration of the creditworthiness of borrowers through a widening of credit spreads for marketable instruments; (iv) lapse rate²⁸ increases; and (v) an increase in loss rates on loan portfolios.

24 The exercise is based on a sample of 65 European banks that were covered in the 2011 EU-wide stress-testing exercise conducted by the EBA. Interbank networks are generated randomly on the basis of banks' interbank placements and deposits, taking into account the geographical breakdown of banks' activities. Once the distribution of interbank networks has been calibrated, the system is subjected to a shock in order to assess how specific shocks are transmitted throughout the system and to gauge the implications for the overall resilience of the banking sector. The shock is typically a bank's default on all its interbank payments. 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).

25 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.

26 The exercise is not related to the EU-wide stress test for the insurance sector coordinated by the European Insurance and Occupational Pensions Authority (EIOPA). Whereas the FSR quantitative assessment is a top-down exercise, the EIOPA stress-testing exercise is essentially a bottom-up stress test. The emphasis of the FSR assessment is on the risks insurers face on aggregate rather than on the prudential solvency ratios of individual insurers, which are computed in the EIOPA exercise.

27 The decrease in property prices is limited, as it is calculated as an endogenous response, rather than as a stand-alone shock. The estimate of its impact is complemented by a sensitivity analysis (see below).

28 The lapse rate is defined as the percentage of contracts prematurely terminated by policyholders.

Table 3.5 Parameters for the assessment of euro area insurers

	Baseline	Global risk aversion shock	Weak economic growth shock	Sovereign debt shock
<i>Exogenous parameters</i>				
Average euro area increase in long-term government bond yields (basis points)	0	0	0	189
Average add-on in credit yields of corporate bonds (basis points)	0	126	0	117
Shock to equity prices	0%	-10%	0%	-22%
Average add-on in lapse rates	0%	-0.1%	-1.1%	-0.1%
<i>Endogenous parameters</i>				
Cumulative loss rates over two years	0.4%	0.7%	0.3%	0.6%
Change in property prices	0%	0%	-0.3%	-0.9%

Source: ECB.

Note: Endogenous parameters have been obtained using macroeconomic models as well as credit risk models, on the basis of the projected values of the macro-financial variables under the baseline scenario and the three adverse shocks.

Using the same adverse shocks as those for banks, the risks for insurance companies are transmitted through three channels, namely: (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.

A number of simplifying assumptions had to be made for this exercise (see Table 3.6 for an overview). First, decreases in the market value 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 measures²⁹ 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, as well as on liabilities and debt assets, broken down by maturity) were used wherever possible, but broad aggregates of financial investments were used in some instances. The relative weights of various investments, broken down by instrument, are shown in Chart S.3.25. 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. Details of the technical assumptions for all relevant variables are given in Table 3.6.

The results confirm the importance of credit risk, although the degree of vulnerability to the materialisation of macro-financial shocks is very heterogeneous across individual insurance groups (see Chart 3.42).

The joint sovereign debt and global risk aversion shock results in the most significant changes in assets for insurance companies – with average losses amounting to 1.1% of their assets. These originate mainly from (corporate) credit risk.³⁰

... under the adverse macro-financial shocks set out earlier

Simplifying assumptions necessary

The joint sovereign debt and global risk aversion shock has a stronger impact

29 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).

30 Expressed as a percentage of net assets (assets minus liabilities), the effect would be equal to 15.7%.

Table 3.6 Technical assumptions regarding the individual risk drivers of insurers' balance sheets

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 <i>debt securities</i> 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 <i>government bond portfolios</i> estimated on the basis of representative euro area sovereign bonds across maturities. Haircuts for <i>corporate bonds</i> derived from a widening of credit spreads.
Lapse risk	Lapse risk quantified by projecting insurers' cash flows over a two-year horizon, assuming a <i>static composition</i> of contracts and the reinvestment of maturing assets without a change in the asset allocation. Lapse rates linked to macroeconomic variables. ¹⁾ Unexpected component of lapses ²⁾ leads to <i>surrender payments</i> . ³⁾ 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 <i>reinvested assets</i> shocked on the basis of investment income earned at the beginning of the simulation horizon. <i>All other assets</i> assumed to earn the initial investment income throughout the simulation horizon. Maturing fixed income assets reinvested retaining the initial asset composition. <i>Underwriting business component</i> of operating profit assumed to remain constant throughout the simulation horizon. No distribution of <i>dividends</i> assumed.

Source: ECB.

1) 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; Smith, S., "Stopping short? Evidence on contributions to long-term savings from aggregate and micro data", *Discussion Paper*, Financial Markets Group, LSE, 2004) and from ECB calculations.

2) 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.

3) 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).

Rising yields have no adverse impact on insurers' solvency

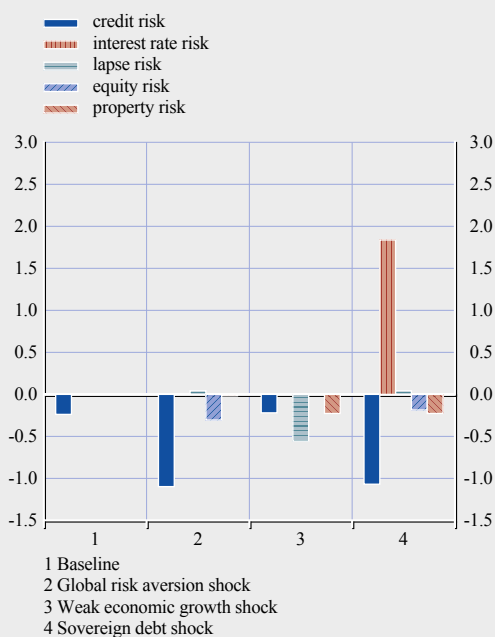
By contrast, the rising yields under the sovereign debt shocks do not have a negative impact on the solvency of insurers in the sample. An increase of 1.8% in their net assets is explained by the longer duration of liabilities and, consequently, their greater sensitivity to the applied discount rate. Average prudential solvency ratios would, however, probably decrease, as most insurers in the sample belong to jurisdictions in which liabilities are not marked to market.³¹ Variations in equity price losses are largely related to the heterogeneity in the volume of such investments. The impact of a fall in equity on assets reaches 0.3%, on average.³² In addition, lapse risk-related losses, amounting to 0.6% of assets, would be higher under the weak economic growth shock. The remaining shocks have milder effects on insurers' balance sheets.

31 Regarding interest rate risk, the forthcoming Solvency II regime is expected to replace current practices with a uniform approach in which the swap curve is used for the discount rate. To gauge the rough impact of such a regime, a projected swap curve, calculated on the basis of a model linking swap rates to sovereign yields, was used to discount liabilities. Under the sovereign debt shock, the application of Solvency II valuation would lead to a lower increase in net assets of, on average, 0.5%, compared with the case where the sovereign yield is used as the discount rate, as the adverse valuation effects in insurers' fixed-income portfolio would not be offset to the same extent by respective movements on the liabilities side since the swap rate would remain decoupled from sovereign yields. It is important to note that the effect of any counter-cyclical instruments under Solvency II was not included in this exercise. Consequently, the negative impact in this exercise is likely to appear significantly more pronounced than it would be under a fully defined Solvency II regime. In addition, this result differs significantly among jurisdictions, depending on the relative paths of the sovereign yields and the swap rates.

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

Chart 3.42 Changes in asset values for large euro area insurers under different shocks

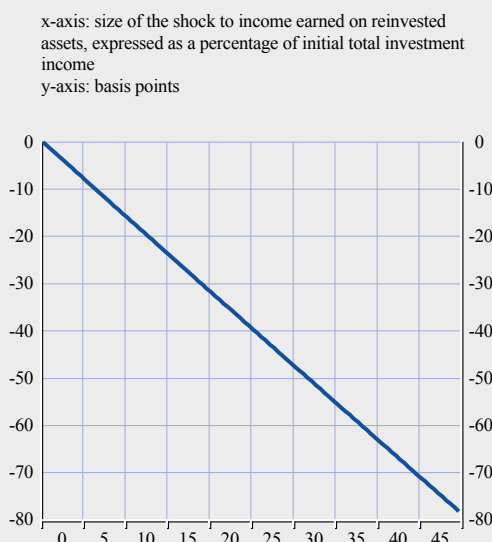
(Q4 2013 – Q4 2015; percentage of total assets)



Sources: Individual institutions' financial reports and ECB calculations.

Chart 3.43 Sensitivity of large euro area insurers' total investment income to shocks to the yields on newly invested assets

(Q4 2013 – Q4 2016)



Sources: Individual institutions' financial reports and ECB calculations.

A sensitivity analysis of the impact of a property price shock is also conducted. An additional house price shock amounting to an 8.6% decrease in property prices is assumed.³³ The losses associated with such a shock are found, on average, to represent 0.2% of insurers' assets.

Another risk faced by insurers is a continuation of the current low-yield environment or a further weakening of their investment income. Chart 3.43 depicts the change in total investment income due to a reduction in income earned from newly invested assets relative to the income earned by existing assets over a three-year horizon. If, for instance, the income earned on newly invested assets is halved, the total investment income would be lowered by, on average, 78 basis points. A comparison with the current average investment income of euro area insurers (see the previous section) suggests, however, that such a reduction in itself does not imply a key challenge for the solvency of the sector, especially given that in this exercise no strategic responses of the insurance firms have been taken into account.³⁴

Halving the income on newly invested assets leads to a reduction of 78 basis points in total investment income

³³ The shock is calibrated with reference to a simulated forward distribution, using the same non-parametric simulation technique that is employed to calibrate financial market shocks. A shortfall measure conditional on a 1% percentile is computed on the basis of the resulting forward distribution.

³⁴ The result is in line with earlier contributions concluding that insurance companies can cope with the low-yield environment in the medium term (see e.g. Kablau, A. and Wedow, M., "Gauging the impact of a low-interest rate environment on German life insurers", *Discussion Paper Series 2: Banking and Financial Studies*, No 02/2011, Deutsche Bundesbank, 2011). On the other hand, the impact of the low-yield environment on investment income would become much more pronounced if a longer projection horizon is assumed (see e.g. "Insurance companies bridging low interest rates and higher capital requirements", *Financial Stability Review*, Deutsche Bundesbank, 2013, pp. 69-85, where a ten-year horizon reaching 2023 is assumed).

3.4 RESHAPING THE REGULATORY AND SUPERVISORY FRAMEWORK FOR FINANCIAL INSTITUTIONS, MARKETS AND INFRASTRUCTURES

This section provides an overview and assessment of a number of regulatory initiatives at both the international and EU levels that are considered to be of primary importance for enhancing financial stability in the EU.

The policy framework for micro- and macro-prudential policy in the EU follows international standards

The November 2013 issue of the Financial Stability Review (FSR) provided a concise overview of the macro-prudential aspects of the Capital Requirements Regulation and Directive (CRR/CRD IV) as well as the Single Supervisory Mechanism Regulation (SSMR). Although certain elements of the CRR/CRD IV package are still subject to finalisation and recalibration, a significant number of policy tools are already available for macro-prudential authorities. Many of these policy tools can be considered as standard micro-prudential instruments used for macro-prudential purposes and being in line with international standards, in particular the Basel Committee's new global standards for capital and liquidity (Basel III).

In addition to defining a set of instruments that macro-prudential authorities can apply to address risks to financial stability, the CRR/CRD IV package also sets out strict notification and coordination mechanisms for authorities. Importantly, most of these instruments will also be available for the ECB when acting in its capacity of a macro-prudential authority in the EU.³⁵

The CRR requires the European Commission to report by 31 December 2014 to the European Parliament and the Council about the review of macro-prudential rules in the CRR/CRD IV. In this context, the Commission shall review whether the macro-prudential rules are sufficient to mitigate systemic risks in sectors, regions and Member States, including assessing (i) whether the tools are effective, efficient and transparent, (ii) whether the coverage and possible overlap between tools are adequate, and (iii) how internationally agreed standards interact with the provisions of the CRR/CRD IV.

The revision of the CRR/CRD IV package should reflect the institutional changes in the macro-prudential policy framework brought about by the establishment of the SSM

Although the current macro-prudential policy framework set out in the CRR/CRD IV largely reflects the views of the ECB,³⁶ including in particular the increased scope of action for macro-prudential authorities beyond the limits originally envisaged in the CRR, the implementation of the macro-prudential toolkit and the associated coordination mechanism can, in some respects, be considered as overly complex and burdensome both for national and EU authorities. Furthermore, the establishment of the Single Supervisory Mechanism (SSM) and the enhanced role of the ECB in macro-prudential policy are not reflected in the CRR/CRD IV text. Therefore, the ECB supports the revision of the macro-prudential rules of the CRR/CRD IV package in a way that reflects the institutional changes in the macro-prudential policy framework brought about by the establishment of the SSM.

With regard to ongoing regulatory initiatives, Tables 3.7-3.9 provide an update of the major strands of work in the EU, followed by a short overview of selected policy measures from the perspective of financial stability and macro-prudential policy.

Significant progress towards a banking union

Since the publication of the last issue of the FSR, significant achievements have been made in the areas identified as central elements of an integrated financial framework in Europe, particularly in the euro area, namely the establishment of (i) a Single Supervisory Mechanism, (ii) a common resolution framework, (iii) a Single Resolution Mechanism and (iv) harmonised deposit insurance.

³⁵ See Box 8 in the November 2013 issue of the FSR.

³⁶ See the Opinion of the European Central Bank of 25 January 2012 on a proposal for a Directive on the access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms and a proposal for a Regulation on prudential requirements for credit institutions and investment firms (CON/2012/5).

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

Initiative	Description	Current status
Single Supervisory Mechanism Regulation (SSMR)	The Regulation establishes a Single Supervisory Mechanism (SSM) with strong powers for the ECB (in cooperation with national competent authorities) for the supervision of all banks in participating Member States (euro area countries and non-euro area Member States which join the system).	On 4 November 2013 the SSMR entered into force. The SSM is scheduled to become operational in November 2014. The ECB is well under way with its preparations to take up the new role of supervisor and is currently carrying out a comprehensive assessment of all banks which will be under its direct supervision.
Bank Recovery and Resolution Directive (BRRD)	The BRRD sets out a resolution framework for credit institutions and investment firms, with harmonised tools and powers relating to prevention, early intervention and resolution for all EU Member States.	An agreement was reached on 11 December 2013 between the European Parliament, EU Member States and the Commission. The agreement has been subject to technical fine-tuning and was formally adopted by the European Parliament on 15 April 2014. The BRRD will enter into force on 1 January 2015, although the bail-in provisions will only be applicable as of 1 January 2016, at the latest.
Single Resolution Mechanism (SRM) Regulation	The SRM Regulation establishes a single system, with a single resolution board and single bank resolution fund, for efficient and harmonised resolution of banks within the SSM. The SRM would be governed by two legal texts: the SRM Regulation covering the main aspects of the mechanism, and an Intergovernmental Agreement related to some specific aspects of the Single Resolution Fund (SRF).	An agreement was reached on 20 March 2014 between the European Parliament, EU Member States and the Commission. The Council has confirmed the agreement and the European Parliament approved it on 15 April 2014. The SRM would enter into force on 1 January 2015, whereas resolution functions (including the SRF) would apply from 1 January 2016.
Deposit Guarantee Scheme (DGS) Directive	The DGS Directive deals mainly with the harmonisation and simplification of rules and criteria applicable to deposit guarantees, a faster payout, and an improved financing of schemes for all EU Member States.	An agreement was reached on 17 December 2013 between the European Parliament, EU Member States and the Commission. The Directive will enter into force once it has been signed by both the Parliament and the Council and published in the Official Journal, expected in the weeks following adoption at the Parliament's April plenary session. Member States will have one year after entry into force to transpose it into national law.
Regulation on structural measures	The Regulation introduces restrictions on certain activities and sets rules on structural separation, with the aim of improving the resilience of EU credit institutions.	The Commission's proposal was published on 29 January 2014.

The establishment of the **Single Supervisory Mechanism** is well under way. On 4 November 2013 the Single Supervisory Mechanism Regulation entered into force. The Regulation confers specific micro- and macro-prudential tasks upon the ECB with strong systemic aspects in both areas for supervision of credit institutions in euro area countries and in non-euro area Member States which enter into close cooperation agreements with the ECB.

From a micro-prudential (i.e. institution-specific) angle, the ECB will, in the initial stage, exercise direct supervisory power over “significant” credit institutions which, because of (i) their overall size (above €30 billion), (ii) their importance for the economy of the EU or any participating Member State or (iii) the significance of their cross-border activities, may pose risks to the

The first pillar of the banking union is the establishment of a Single Supervisory Mechanism

EU financial system, either directly or through contagion channels. Effectively, the ECB will become the authority responsible for the direct supervision of significant institutions, accounting for almost 85% of total banking assets in the euro area, while ensuring the effectiveness and consistent functioning of the SSM with regard to all credit institutions.

At the same time, the ECB will also be entrusted with the power to implement certain macro-prudential measures that are applicable in a uniform way to all credit institutions, or to a sub-set of them, with the aim to address systemic risks of a structural or cyclical nature. Preparations for the establishment of an appropriate organisational structure and coordination mechanism between the ECB and the Member States are well under way.

An essential element of the preparations for the SSM is the comprehensive assessment, providing the necessary clarity for the banks that will be subject to the ECB's direct supervision and allowing for balance sheet repair before the start of the banking union. The comprehensive assessment is built on two important pillars and is progressing well.

The first is an asset quality review (AQR), where the ECB and the participating national competent authorities (NCAs) review the quality of banks' assets as at 31 December 2013. The AQR is based on a capital benchmark of 8% for common equity Tier 1. The ECB published the "AQR Phase 2 Manual" on 11 March, providing full transparency for the different building blocks of the AQR.

The second pillar is a stress test aimed at examining the resilience of banks' balance sheets to stress scenarios. The stress test will provide a forward-looking view of banks' shock-absorption capacity under stress. The horizon for the exercise will be three years and a static balance sheet assumption will apply over this stress-test horizon. On 29 April the European Banking Authority (EBA) released the methodology and scenarios for the EU-wide stress test. The ECB has collaborated closely with the EBA on the stress-test methodology and with the European Systemic Risk Board (ESRB) which produced the adverse scenario. The baseline scenario was produced by the European Commission. The capital thresholds for the baseline and adverse scenarios are set at ratios of 8% and 5.5%, respectively, for common equity Tier 1.

The AQR and the stress test are closely interlinked and will yield a rigorous, independent and centralised comprehensive assessment. The results will be published in October 2014, shortly before the SSM is due to assume its operational responsibility.

More generally, the ECB-internal preparations for the SSM are also well under way and progress has been made on various fronts. Following the completion of a public consultation, the ECB adopted the SSM Framework Regulation on 25 April 2014. The SSM Framework Regulation provides the procedures governing the cooperation between the ECB and the NCAs and sets out the methodology for the assessment of the significance of credit institutions. The development of the SSM supervisory model has largely been finalised.

An important element of the banking union is a common EU framework for bank recovery and resolution. It was therefore important that a political agreement was reached between the European Parliament and the Member States on the **Bank Recovery and Resolution Directive (BRRD)** on 11 December 2013.

The BRRD will provide common and efficient tools and powers for addressing a banking crisis

The new rules, which should enter into force on 1 January 2015,³⁷ will provide common and efficient tools and powers for addressing a banking crisis pre-emptively and for managing failures of credit institutions and investment firms in an orderly way throughout the EU. It will also help to restore the principle that investors, and not taxpayers, are first in line to bear losses when risks stemming from an investment materialise. For this purpose, the range of powers available to the relevant authorities consists of three elements: (i) preparatory steps and plans to minimise the risks of potential problems; (ii) in the event of emerging problems, powers to halt a bank's deteriorating situation at an early stage in order to avoid a failure (early intervention); and (iii) if an institution is failing or likely to fail, clear means to resolve the bank in an orderly fashion, while preserving its critical functions and not exposing taxpayers to losses.

Another key element of the banking union is the **Single Resolution Mechanism (SRM)**, which establishes a single system for resolution, with a Single Resolution Board and a Single Resolution Fund (SRF) at its centre, for the resolution of banks in SSM-participating Member States. As stated in the ECB opinion on the SRM proposal³⁸, the ECB fully supports the establishment of the SRM, which will contribute to strengthening the architecture and stability of Economic and Monetary Union.

The SRM aims to set up a single system for resolution, with a Single Resolution Board and a Single Resolution Fund

The SRM is a necessary complement to the SSM in order to achieve a well-functioning banking union and to sever the link between banks and their sovereigns. With both the SSM and SRM fully in place, the level of responsibility and decision-making for supervision and resolution will be at the European level. This will in turn ensure that incentives are aligned, avoiding potential distortions and conflicts of interest. The SRM will ensure that if a bank fails, and it is in the public interest to resolve it, its resolution can be managed efficiently, jointly and in the common interest. The SRM will be better able to deal with failing cross-border banks than national authorities, since all the necessary supervisory information and tools will be available to centralised decision-makers. Furthermore, the SRM will be better placed to take due account of contagion and spillovers when making resolution decisions. It will also ensure a consistent application of resolution principles and tools throughout the banking union, also for banks with no cross-border activity.

The SRM will be governed by two legal texts: (i) the SRM Regulation, which covers the main aspects of the mechanism and is based on the BRRD, and (ii) an Intergovernmental Agreement (IGA), which covers some specific aspects of the Single Resolution Fund (SRF).

The SRM will apply to all banks supervised by the SSM. Thus, any Member State outside the euro area which opts to join the SSM will automatically also fall under the SRM. The decision-making within the SRM will be built around a Single Resolution Board (SRB), which will involve permanent members acting independently and the national resolution authorities, as well as the Commission and the ECB as observers. The SRB will prepare resolution plans and directly resolve all entities and groups which are directly supervised by the ECB or are defined as cross-border groups in the SRM Regulation. It will also directly resolve any bank under national supervision whenever such resolution includes use of the SRF.

The SRB will meet in two configurations: the plenary and executive sessions. In its plenary session, comprising all members, the SRB would take all decisions of a general nature. In its executive session, comprising the permanent members, the observers and the directly concerned Member States' members, the SRB would prepare all decisions concerning a resolution procedure and

³⁷ With the exception of the bail-in tool which will follow by 1 January 2016 at the latest.

³⁸ See the Opinion of the ECB of 6 November 2013 (CON/2013/76).

adopt those decisions. However, when a resolution scheme would require the use of the SRF above certain thresholds, any member of the plenary may, within a strict deadline, request that the plenary session decide instead of the executive session.

If all the conditions for resolution are met, the SRB will adopt a resolution scheme for the institution or group in question, which is transmitted immediately thereafter to the European Commission. The resolution scheme is approved if either the Commission approves it upfront or it raises no objections within 24 hours. The Council only becomes involved in the decision-making if the Commission disagrees with the resolution scheme. In such a case, within 12 hours of receiving the resolution scheme from the SRB, the Commission may propose to the Council to either: (i) object to the resolution scheme on grounds that there is no public interest of resolution or (ii) approve or object to a material modification of how much the SRF is used in the resolution scheme. In such a case, the Council will, still within these first 24 hours, either approve or object to the proposal by a simple majority decision. In other words, they cannot amend it. If the Council approves the proposal of the Commission, the SRB must modify the resolution scheme accordingly within eight hours. This process implies that resolution decisions can be made over a weekend, also in the case when a scheme is modified by the Commission and approved or rejected by the Council.

The SRM Regulation also establishes the SRF, to which all the banks in the participating Member States would contribute. The SRF has a target level of an amount equal to 1% of covered deposits of the SSM banks, which is to be reached in eight years.

The transfer of contributions levied at national level to the SRF, as well as the mutualisation of the SRF's available means, is provided for in the IGA established among the Member States participating in the SRM. Mutualisation shall be subject to a transition period of eight years, during which financial means transferred to the SRF will be earmarked to national compartments. This mutualisation is substantially frontloaded, making available – if needed – a large portion of the available means in all compartments also in the early years of the transition period. If the compartments of the affected Member States and the mutualised contribution from all compartments are still insufficient, ex post contributions from the institutions in the affected Member States will be used. The SRB may also exercise its power to contract for the SRF borrowings or other forms of support or to make temporary transfers between compartments. This borrowing capacity should be in place by the date when the Regulation becomes fully applicable, i.e. 1 January 2016 at the latest.

The Council confirmed the agreement and the European Parliament approved it in April 2014. The text will again be put to a vote in the first plenary session of the European Parliament in July (in the form of a corrigendum to the April vote). After this, the Council will formally adopt the text; thus, final adoption is expected on 16 July. The Single Resolution Mechanism would enter into force on 1 January 2015, whereas resolution functions would apply from 1 January 2016.

Box 10

FORTHCOMING IMPLEMENTATION OF THE BAIL-IN TOOL

The forthcoming Bank Recovery and Resolution Directive (BRRD) will introduce a bail-in tool in all Member States by 1 January 2016 at the latest. The bail-in tool will enable resolution authorities to write down or convert into equity the claims of a broad range of creditors in resolution. This tool will be essential to achieve orderly resolution without exposing taxpayers to losses, while ensuring continuity of critical functions to avoid a serious disturbance in the financial system and the economy as a whole.

The order in which creditors, after shareholders, would be affected by a bail-in is the following: subordinated liabilities, unsecured and non-preferred liabilities, and preferred liabilities. Covered deposits are excluded from bail-in, but the deposit guarantee scheme (DGS) would step in and make a contribution for covered deposits (i.e. eligible deposits up to €100,000) if needed. To further protect deposits in insolvency and resolution, a harmonised depositor preference is introduced. Eligible deposits from natural persons and micro, small and medium-sized enterprises will be preferred over unsecured and non-preferred liabilities, while covered deposits will be preferred over all eligible deposits. The DGS will subrogate the preferred ranking of covered deposits in insolvency and resolution cases; thereby the depositor preference will also protect the DGS.

In the BRRD, a few particular types of liabilities, in addition to covered deposits, are excluded from bail-in, e.g. secured liabilities, liabilities in relation to client assets, client money or fiduciary relationships, and certain very short-term (less than seven days) liabilities to other institutions or to financial systems/operators of such systems. All creditors are also protected by the “no-creditor-worse-off” principle, i.e. they should never face losses in resolution that are higher than they would be subjected to under normal insolvency.

In exceptional circumstances, the BRRD allows resolution authorities to exclude or partially exclude other liabilities if: (i) it is not possible to bail them in within a reasonable time; (ii) it is strictly necessary and proportionate to achieve the continuity of critical functions and core business lines; (iii) it is strictly necessary and proportionate to avoid giving rise to widespread contagion; or (iv) if bailing them in would cause a destruction of value such that the losses borne by other creditors would be higher than if these liabilities were excluded from the bail-in. In order to avoid that this flexibility is casually used to shield creditors from losses, the resolution fund cannot be used, as a general rule, to cover any excluded liabilities until an amount of at least 8% of the total liabilities, including own funds, of a bank have been bailed in. The Commission has the right to object or require amendments if the requirements for such exemptions are not met, provided that the exemption would require a contribution by the SRF or an alternative financing source. The Single Resolution Mechanism will also ensure a consistent application of the bail-in tool in the banking union.

In order to make sure that there are sufficient liabilities to bail in at the point of resolution, the resolution authorities will, in consultation with the supervisors, determine a minimum requirement of eligible liabilities and own funds (MREL) for bail-in for each bank. The MREL will be determined as a percentage of total liabilities and own funds, with which banks must comply. To be eligible, an instrument must be issued and fully paid up, not owed to, secured by or guaranteed by

the institution itself, not be a preferred deposit or a derivative, and have a remaining maturity of at least one year, among other things.

The level and, for bank groups, the locations of the MREL will depend on the resolution strategy developed for the specific bank or group. The resolution authority, after consulting the supervisor, will draw up a plan which provides for the resolution actions to be taken if the bank meets the conditions for resolution. These plans should describe how orderly resolution may be achieved without exposing taxpayers to losses, while ensuring continuity of critical functions. It will be possible to adjust the MREL depending on the structure, size, risk profile and business model of the bank and its degree of resolvability. For most banks in the EU, the work to conduct resolvability assessments, develop resolution plans and determine MREL levels will begin in 2015, when both the BRRD and the Single Resolution Mechanism Regulation will be applicable. However, for the global systemically important banks (G-SIBs) under the G20/Financial Stability Board's agenda to end the too-big-to-fail problem, the work has already started. Currently, work – in which the ECB is participating – is ongoing to develop a proposal on the adequacy, type and location of gone-concern loss-absorbing capacity (GLAC) in resolution for G-SIBs. The GLAC proposal, which would correspond to the MREL in the BRRD, should be ready by the end of the year – in time for the FSB's Brisbane summit in November 2014.

Improved depositor protection in Europe

A final element of the banking union is the establishment, in the medium term, of a common deposit guarantee fund in Europe. A first step in this direction was the agreement on the **Deposit Guarantee Scheme Directive (DGSD)** on 17 December 2013. The DGSD will enter into force once it has been signed by both the Parliament and the Council and published in the Official Journal. It is expected to be finalised in May. Member States will have one year after entry into force to transpose it into national law.

The DGSD will ensure that deposits in all Member States will continue to be guaranteed up to €100,000 per depositor and bank. The DGSD will also ensure faster payouts with specific repayment deadlines, which would be gradually reduced from 20 to 7 working days. It will also ensure strengthened financing of national DGSs, notably by requiring a significant level of ex ante funding (0.8% of covered deposits) to be met in ten years. A maximum of 30% of the funding could be made up of payment commitments. In case of insufficient ex ante funds, the DGS would collect immediate ex post contributions from the banking sector and, as a last resort, the DGS would have access to alternative funding arrangements, such as loans from public or private third parties. There would also be a voluntary mechanism for mutual borrowing between DGSs from different EU countries.

The proposal for a Regulation on structural measures aims at improving the resilience of European banks

On 29 January 2014 the European Commission presented its proposal for a **Regulation on structural measures for EU credit institutions**. The proposal aims at improving the resilience of European banks by preventing contagion to traditional banking activities from banks' trading activities. This would be done by prohibiting banks from carrying out proprietary trading, i.e. securities trading not related to client activity or hedging, and only for the purpose of making a profit. Furthermore, it is proposed that supervisors can require a bank to shift other trading activities to trading entities, which are legally, economically and operationally separated from the deposit-taking entity of the bank. The decision on structural separation should be based on various risk metrics, such as the share of trading assets in banks' total assets and the relative importance of market risk exposure. Importantly, trading in government bonds issued by Member States will be exempted from the prohibition as well

as the separation requirements. Likewise, the deposit-taking entity will still be able to use financial instruments aimed at hedging its own risks. The regulation will cover all global systemically important banks in the EU as well as other banks with sufficiently large trading activities.

Another key objective of this proposal is to reduce banks' incentives to take excessive risks on the back of the safety net (resolution funds, deposit insurance funds, or ultimately governments), and to make banks less complex to resolve. In that way, the proposal can complement the BRRD and may, at the same time, contribute to enhancing systemic stability in Europe. Also, by harmonising rules on structural regulation, the proposal seeks to create a level playing field between banks inside the EU.

The ECB is working on its opinion on this proposal.

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

Taking into account the comments received during a public consultation in 2013, it is expected that the Governing Council will adopt an **ECB Regulation on oversight requirements for systemically important payment systems** in due course. The Regulation, which implements the CPSS-IOSCO principles in a legally binding way, covers both large-value and retail payment systems of systemic importance, whether operated by Eurosystem national central banks or private entities. It defines the criteria for qualifying a payment system as systemically important. The requirements defined in the Regulation are aimed at ensuring efficient management of legal, credit, liquidity, operational, general business, custody, investment and other risks as well as sound governance arrangements, objective and open access and the efficiency and effectiveness of systemically important payment systems (SIPs). These requirements are proportionate to the specific risks to which such systems are exposed. Four SIPs have been identified: TARGET2, operated by the Eurosystem, EURO1 and STEP2, operated by EBA Clearing, and CORE, operated by STET. There will be a transitional period of one year after the entry into force of the Regulation, allowing for the four SIPs operators to familiarise themselves with and to implement the requirements.

The Governing Council adopted an ECB Regulation on oversight requirements for systemically important payment systems

Since the publication of the last issue of the FSR, important key milestones in the implementation of the **European Market Infrastructure Regulation** (EMIR) have been reached.

Central counterparties (CCPs) that were previously authorised in a Member State had to apply for authorisation under EMIR by 15 September 2013. On 18 March 2013 the first EU CCP was authorised under EMIR. In the meantime, further EU CCPs³⁹ that filed an application have been authorised to offer services and conduct activities in the EU. The authorisation of a CCP under EMIR triggers the process of determining the mandatory clearing obligation. In accordance with EMIR, the European Securities and Markets Authority (ESMA) will have to submit draft regulatory standards on the clearing obligation by mid-September 2014 if the classes of over-the-counter (OTC) derivatives notified to ESMA meet the criteria defined in EMIR. The procedure defined in Article 5(2) of EMIR is triggered every time a new CCP clearing OTC derivatives is authorised.

Six trade repositories have been registered by ESMA in accordance with EMIR. The first registration took effect on 14 November 2013 and the reporting to trade repositories began on 12 February 2014 for those contracts entered into as of that date, with outstanding contracts being phased in.

39 An up-to-date list of authorised CCPs can be found on the website of ESMA at <http://www.esma.europa.eu/content/Registries-and-Databases>

Table 3.8 Selected legislative proposals in the EU for financial markets

Initiative	Description	Current status
ECB Regulation on oversight requirements for systemically important payment systems	The Regulation aims at ensuring efficient risk management for all types of risk that systemically important payment systems face, together with sound governance arrangements, objective and open access, as well as the efficiency and effectiveness of SIPSs.	Expected to be adopted shortly.
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, inter alia, for central counterparties and trade repositories.	The Regulation entered into force in August 2012. Implementation is ongoing.
Regulation on improving the safety and efficiency of securities settlement in the EU and on central securities depositories (CSDR)	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 CSDR was adopted by the European Parliament on 15 April 2014 and is expected to be adopted by the Council in June, which would allow for an entry into force early in the third quarter of 2014.
Review of the Markets in Financial Instruments Directive and Regulation (MiFID II/MiFIR)	The proposals will apply to investment firms, market operators and services providing post-trade transparency information in the EU. They are 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 organisation of trading venues and investor protection.	The European Commission's proposal was published in October 2011. A final agreement between the Parliament and the Council was reached in January 2014. The proposals are now being fine-tuned at the technical level.
Money Market Fund (MMF) Regulation	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 draft proposal was published in September 2013. The European Parliament has been studying the proposal.
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 improve transparency towards investors and on re-hypothecation arrangements.	The European Commission's draft proposal was published in January 2014.

The European Commission published a legislative proposal on improving the safety and efficiency of securities settlement in the EU and on **central securities depositories** (the CSDR) in March 2012. The Regulation will introduce, inter alia, an obligation of dematerialisation for most securities, harmonised settlement periods for most transactions in such securities, settlement discipline measures and common rules for CSDs. The CSDR will enhance the legal and operational conditions for cross-border settlement in the EU. The European Parliament adopted the CSDR on 15 April and its adoption by the Council is expected in June, which would allow for an entry into

force in July 2014. The CSDR delegates to ESMA and the EBA the drafting, in close cooperation with the members of the ESCB, of technical standards within nine months of the entry into force date. In the interim period until the CSDR and technical standards are finalised and in force, the Eurosystem will use the Principles for Financial Market Infrastructures (PFMIs) as oversight standards.

In the field of **shadow banking**, following up on its action plan of September 2013, the European Commission issued a legislative proposal for a **regulation on reporting and transparency of securities financing transactions** (SFTs) on 29 January 2014. The proposal would require that all transactions are reported to a central database. This would (i) allow supervisors to better identify, monitor and address the risks associated with SFTs, (ii) improve transparency towards investors on the practices of investment funds engaged in SFTs and other equivalent financing structures by requiring detailed reporting on these operations, aiding investors in taking better-informed decisions, and (iii) improve the transparency of the re-hypothecation (i.e. any pre-default use of collateral by the collateral taker for their own purposes) of financial instruments by setting minimum conditions to ensure the consent of the parties involved.

At the international level, the Financial Stability Board (FSB) completed in March 2014 its high-level policy framework for strengthening oversight and regulation of other shadow banking entities (other than money market funds) with the endorsement of an information-sharing process among its members. The sharing of information among the competent authorities concerned is due to start in May 2014, and a peer review of the domestic implementation of the FSB policy framework is planned to be launched in 2015.

The FSB made progress on its shadow banking reforms

The FSB is expected to release an implementation timetable for the policy framework for recommendations to address financial stability risks associated with SFTs (initially published in August 2013). The FSB aims to finalise its policy recommendations on haircuts for non-centrally cleared SFTs by September this year, based on the feedback and results of a recent public consultation and quantitative impact study.

Table 3.9 Selected legislative proposals in the EU for the insurance sector

Initiative	Description	Current status
Solvency II Directive/Omnibus II Directive	<p>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.</p> <p>The Omnibus II Directive aligns the Solvency II Directive with the legislative working methods introduced by the Lisbon Treaty, incorporates new supervisory measures given to the European Insurance and Occupational Pensions Authority (EIOPA) and makes technical modifications.</p>	<p>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.</p> <p>In March the European Parliament adopted the Omnibus II Directive following a plenary vote. The European Commission is now preparing delegated acts and EIOPA is working on a package of implementing technical standards and guidelines.</p>

In the field of insurance regulation in Europe, a breakthrough has been achieved. Based on the technical findings of the Long-Term Guarantees Assessment (LTGA) by EIOPA, the dialogue has reached a compromise on measures for long-term activities in the Omnibus II Directive. Such measures shall mitigate distortions to long-term business triggered by short-term volatility in financial markets, as Solvency II introduces the market-consistent valuation of all assets and liabilities. The agreement made it possible to further proceed with the implementation of Solvency II. The European Parliament approved the Solvency II transposition date of 31 March 2015 and implementation date of 1 January 2016. The European Commission is now preparing delegated acts and EIOPA is working on two sets of implementing technical standards and guidelines.

Box 11

REVIVAL OF “QUALIFYING” SECURITISATION, MAIN HURDLES AND REGULATORY FRAMEWORK

The securitisation market seized up with the onset of the financial crisis and has remained severely impaired since then. Many factors are deemed to be causing this stagnation, including poor investor sentiment, unfavourable transaction economics, a poor macroeconomic environment and regulatory concerns.

Risks and losses associated with securitisation products have, however, been substantially different across asset types and jurisdictions. While certain securitisation market segments were key contributors to the widespread stress, this was not the case for all segments. Indeed, only 0.1% of European residential mortgage-backed securities (RMBSs), accounting for more than half of total European securitisation issuance, defaulted between 2007 and the third quarter of 2013, by one estimate¹. This is in stark contrast to the performance of collateralised debt obligations (CDOs) of asset-backed securities (ABSs), where the default rate was around 40% over the same period. The chart below provides additional evidence of heterogeneity in securitisation performance across both jurisdictions and asset classes. The performance of securitised instruments throughout the crisis has at times been extremely heterogeneous, which in many ways contrasts with the stigma that has affected the overall demand for securitised instruments across the board.

On the regulatory side, the treatment of securitisation is profoundly under review, both at the European and international level. This is however a complex task: the beneficial features of securitisation (such as risk diversification and the creation of marketable securities out of illiquid assets) should be fostered, while mitigating potential risks (such as the lack of risk retention by originators and the complexity and opaqueness of certain products). At the same time, consistency needs to be ensured relative to other instruments (such as covered bonds) and across various market participants (e.g. banks, insurers, money market funds) which are subject to different regulatory frameworks; failure to achieve this balance could lead to unintended consequences. The regulatory treatment of securitisation requires close scrutiny: recent proposals appear to have been calibrated on the worst-performing transactions, whereas structural differences across jurisdictions could have been taken into consideration more prominently.

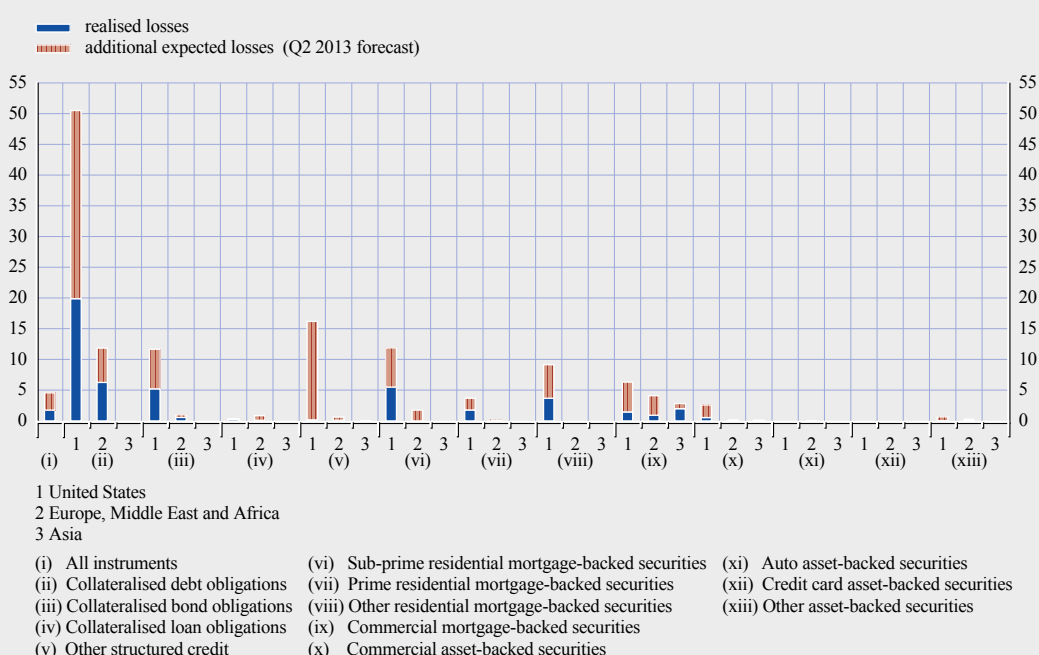
¹ Source: Standard and Poor's.

In this context, some recent initiatives aim to identify qualifying securitisations, which through their simplicity, structural robustness and transparency, would enable investors to model risk with confidence and would provide originators with incentives to behave responsibly. Qualifying securitisations could benefit from improved market liquidity and may also warrant a more favourable regulatory treatment. The European Commission is currently undertaking work on high-quality securitisation products in order to assess if a preferential regulatory treatment compatible with prudential principles is warranted for such securitisations. The ECB has a keen interest in a well-functioning ABS market and is therefore closely following the developments in initiatives regarding securitisations, also in the light of the role of ABSs as collateral in the Eurosystem's monetary policy operations. The ECB has introduced loan-level information requirements for ABSs if used as collateral in the Eurosystem's credit operations. Through the launch of the Prime Collateralised Securities (PCS) label initiative in November 2012, market participants have also attempted to identify high-quality ABSs. Moreover, the ECB is actively contributing to efforts to revive the ABS market by expressing its views on the matter, including in two joint publications with the Bank of England on the revival of the securitisation market in April and May 2014.

The topic is of wider importance owing to the desire among EU policy-makers to explore the role of SME loan securitisation in funding the real economy and to ensure that such issuance is not unduly constrained by its regulatory treatment. With the European deleveraging cycle not yet completed, enhancing the access to financing is a crucial policy objective. Owing to the ability of securitisation instruments to diversify credit risks, lower funding costs and mitigate asset encumbrance, this topic is also key from a financial stability perspective.

Structured finance: realised and additional expected losses across regions

(2000 – 2012; percentages)



Source: Fitch Ratings.

Many challenges remain in terms of making any definition of “qualifying securitisations” operational, reaching an EU and international agreement, and the possible “rewards” for qualifying ABSs. In this context, the Eurosystem’s (and, more generally, central banks’) ABS collateral eligibility criteria may offer an appropriate starting point to define qualified securitisation criteria, while prudential considerations should also be taken into account when defining a qualifying instrument for regulatory purposes.

The potential revival of a qualifying securitisation market will certainly require concerted and coordinated efforts; thus, the active involvement of all key EU and international policy bodies involved in structured finance and long-term financing is crucial. A healthy securitisation market based on high-quality underlying assets, robust and standardised structures, and increased disclosure could contribute to providing smooth funding channels for real economy assets, distributing risks across different asset classes, regions and financial sectors, and increasing banks’ flexibility to tap additional sources of liquidity. All in all, it could support both the financial system and the broader economy.



SPECIAL FEATURES

A RECENT EXPERIENCE OF EUROPEAN COUNTRIES WITH MACRO-PRUDENTIAL POLICY¹

The global financial crisis revealed a need for macro-prudential policy tools to mitigate the build-up of systemic risk in the financial system and to enhance the resilience of financial institutions against such risks once they have materialised.

In the EU, macro-prudential policy is an area that is in an early stage of development. This is also true as regards the use of instruments to address systemic risk for which there is so far only limited experience to draw on. Hence, there is general uncertainty about the effectiveness of such instruments in practice. Nevertheless, country-level experience can serve as a useful yardstick for formulating macro-prudential policy in the EU. This special feature considers the experience of European countries with macro-prudential policy implementation. Overall, the evidence surveyed here indicates that macro-prudential policies can be effective in targeting excessive credit growth and rapidly rising asset prices, although other policies can be a useful complement to reduce the build-up of imbalances. At the same time, the appropriate timing of macro-prudential policy measures remains a challenging task.

INTRODUCTION

Several European countries experienced a large build-up of financial imbalances in the period leading up to the global financial crisis. In the financial sector, many institutions increased leverage and maturity mismatches. In the household sector of some European countries, mortgage lending and property prices increased relative to income and the gross domestic product (GDP). Moreover, in central and eastern European countries (CEE countries), households took on excessive foreign exchange risk by borrowing in foreign currencies.

Many of these financial imbalances were revealed when the global financial crisis began in 2007, and their unwinding had considerable negative implications for the financial system and the real economy. The fall in the value of financial assets weakened banks' balance sheets and induced them to deleverage. In many countries, rising unemployment, coupled with falling house prices, led to a deterioration in households' financial situation. Furthermore, in some countries, households that had borrowed in foreign currency faced higher debt burdens as domestic currencies depreciated.

In the light of these experiences, policy authorities in the EU and elsewhere are devoting major efforts to setting up macro-prudential policy bodies at the national as well as supranational level (such as the European Systemic Risk Board (ESRB)), to focusing on the stability of the financial system as a whole and to working towards increasing banks' resilience to shocks and reducing the build-up of systemic risks.² Furthermore, several macro-prudential policy instruments are now embedded in the legislation transposing the Basel III global standards on bank capital into the EU legal framework (via a Regulation and a Directive, the "CRD IV" package). These are mainly capital-based instruments aimed at increasing banks' resilience to macro-financial shocks, such as the counter-cyclical capital buffer, the systemic risk buffer and capital buffers for systemically important institutions. They are complemented by tools such as exposure limits.³ In the EU, the Single Supervisory Mechanism (SSM) will partly lift macro-prudential policy-making to the supranational

Macro-prudential policy is not a new concept

¹ Prepared by Christoffer Kok, Reiner Martin, Diego Moccero, Maria Sandström.

² Macro-prudential oversight bodies have also been set up in other major economies, such as the Financial Stability Oversight Council in the United States.

³ See Box 8 entitled "Macro-prudential aspects of the SSM Regulation", in *Financial Stability Review*, ECB, November 2013.

level when the ECB assumes its new banking supervision responsibilities in November 2014.⁴ The ECB will have some powers to implement macro-prudential measures as set out in the CRD IV package.⁵

These recent developments notwithstanding, the use of macro-prudential policy tools is not new. In the period from the Second World War until the financial deregulation of the 1980s, many countries worldwide closely regulated credit markets using instruments which resemble the macro-prudential policy tools discussed today.⁶ From the 1990s onwards, macro-prudential policy measures have been most actively used in emerging markets, particularly in Asia. A number of European countries have also implemented macro-prudential policies, in particular to mitigate risks related to foreign currency lending (especially prevalent in CEE countries). More recently, a number of countries have adopted measures to increase financial system resilience and prevent or mitigate the further build-up of risks related to housing markets and household indebtedness in a low interest rate environment.

For the ECB to fulfil its macro-prudential mandate, it is important to draw lessons from countries' past experiences with macro-prudential policy implementation. This special feature therefore provides updated evidence on the experience with macro-prudential policy measures in European countries. More specifically, it focuses on policies aimed at reducing systemic risk that results from imbalances in housing markets and foreign currency lending, since these have so far been the most commonly implemented national macro-prudential policy measures in European countries.

EVIDENCE ON MACRO-PRUDENTIAL POLICY

Macro-prudential policies can be broadly described as prudential measures aimed at reducing systemic risk and preserving financial stability. However, other policies such as fiscal policies, monetary policies and micro-prudential policies can also have an impact on financial stability.⁷ In addition, many of the macro-prudential policy tools have characteristics in common with standard tools used in micro-prudential supervision, such as adjustments to capital requirements and liquidity requirements. This is particularly the case for the macro-prudential tools provided for in the CRD IV package. However, whereas micro-prudential supervision focuses on individual banks, macro-prudential policies consider broader macroeconomic and financial market developments. Nevertheless, this similarity between macro-prudential and micro-prudential policy instruments means that certain policy measures can be implemented with a micro- and/or a macro-prudential objective, implying that macro-prudential policy actions might have an impact on micro-prudential supervision, and vice versa (see also Special Feature C for a discussion of the interactions between micro- and macro-prudential supervision).

In addition to standard supervisory measures for the banking sector, adjustments to reserve requirements, a standard monetary policy instrument, can also be employed for macro-prudential

4 The SSM will create a new system of financial supervision comprising the ECB and the national competent authorities of participating countries. Among these EU countries are those whose currency is the euro and those whose currency is not the euro but who have decided to enter into close cooperation with the SSM.

5 See also Article 5 of Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions (OJ L 287, 29.10.2013, pp. 63-89).

6 See, for example, Elliott, D. J., Feldberg, G. and Lehnert, A., "The history of cyclical macroprudential policy in the United States", *Finance and Economics Discussion Series*, No 2013-29, Board of Governors of the Federal Reserve System, 2013.

7 Monetary policy also has an impact on the financial cycle, resulting in interlinkages between macro-prudential and monetary policy. See "Macro-prudential policy objectives and tools", *Financial Stability Review*, ECB, June 2010, and "Exploring the nexus between macro-prudential policies and monetary policy measures", *Financial Stability Review*, ECB, May 2013.

policy purposes. Moreover, certain economic policy tools that target borrowers, such as caps on loan-to-value (LTV) or debt-to-income (DTI) ratios, are generally regarded as macro-prudential policy measures.⁸

Because of its interaction with micro-prudential, fiscal and monetary policies, assessing the effectiveness of macro-prudential policy is complex. A number of studies have estimated the impact of macro-prudential policy measures in a cross-section of countries. Lim et al. (2011) find that some of the most common macro-prudential measures were effective in a cross-section of 46 countries between 2000 and 2010. More specifically, tightened LTV and DTI ratios, reserve requirements, dynamic provisioning and ceilings on credit growth (also in foreign currency) all seem to reduce the pro-cyclicality of credit growth.⁹ Kuttner and Shim (2013) investigate housing-related measures for 57 countries in the period from 1980 to 2011. They conclude that macro-prudential policies have been effective in dampening housing prices and credit without distinguishing between different measures.¹⁰ Vandenbussche et al. (2012) study measures taken in central, eastern and south-eastern Europe from the late 1990s to 2010. They find that higher capital ratios and marginal reserve requirements on foreign funds have a dampening impact on house price inflation.¹¹

However, showing that macro-prudential policy implementation has a significant effect in a sample of countries does not mean that the same is true for an individual country. More specifically, although many financial systems are highly interrelated, they can also differ significantly between countries. The policy impact should therefore also be analysed at the national level. A few studies have evaluated the impact of macro-prudential policy measures in individual countries. The Hong Kong Monetary Authority (2011) finds that adjustments to LTV caps have been effective in reducing systemic risk that stems from boom and bust cycles in the property market.¹² However, recent evidence suggests that caps on LTV ratios are more effective in dampening household leverage than mitigating credit growth or property price growth.¹³ At the same time, Igan and Kang (2011) find that measures tightening LTV and DTI caps have been associated with lower house price growth and real estate brokerage activity in Korea.¹⁴ Kim (2014) notes that the Korean LTV and DTI regulations have also been successful in curbing mortgage lending, but not without unintended consequences.¹⁵ It should be noted that in both Hong Kong and Korea, the macro-prudential measures were combined with other structural, monetary or fiscal measures.

Impact of macro-prudential policy should be analysed at the national level

European country-level studies of macro-prudential measures remain scant, which is mostly due to the fact that fewer countries have practical experience with macro-prudential policy implementation.

8 For further details on macro-prudential policy instruments and their transmission mechanism, see *The ESRB handbook on operationalising macro-prudential instruments in the banking sector*, ESRB, 2014, and Committee on the Global Financial System, “Operationalising the selection and application of macro-prudential instruments”, *CGFS Papers*, No 48, December 2012.

9 See Lim, C., Columba, F., Costa, A., Kongsamut, P., Otani, A., Saiyid, M., Wezel, T. and Wu, X., “Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences”, *IMF Working Paper Series*, No 11/238, IMF, Washington, D.C., October 2011.

10 Kuttner, K.N. and Shim I., “Can non-interest rate policies stabilise housing markets? Evidence from a panel of 57 economies”, *BIS Working Paper Series*, No 433, BIS, November 2013.

11 Vandenbussche, J., Vogel, U. and Detragiache, E. “Macroprudential Policies and Housing Prices – A New Database and Empirical Evidence for Central, Eastern, and Southeastern Europe”, *IMF Working Paper Series*, No 12/303, IMF, Washington, D.C., December 2012.

12 Hong Kong Monetary Authority, “Loan-to-value ratio as a macroprudential tool – Hong Kong SAR’s experience and cross-country evidence”, *BIS Research Papers*, BIS, No 57, 2011.

13 He, D., “The effects of macroprudential policies on housing market risks: evidence from Hong Kong”, *Financial Stability Review*, No 18, Banque de France, April 2014.

14 Igan, D. and Kang, H., “Do Loan-to-Value and Debt-to-Income Limits Work? Evidence from Korea”, *IMF Working Paper Series*, No 11/297, IMF, Washington, D.C., 2011.

15 Kim, C., “Macroprudential policies in Korea: Key measures and experiences”, *Financial Stability Review*, No 18, Banque de France, April 2014.

Within the euro area, reserve requirements cannot be used to target excessive credit growth in individual countries

Table A.1 provides an overview of the most common macro-prudential policy measures that have been implemented in European countries since the late 1990s. Many of these measures had the objective of reducing the systemic risk stemming from imbalances in housing markets and excessive foreign currency lending. The table builds on databases compiled by the International Monetary Fund (IMF) and the Bank for International Settlements (BIS), complemented by the most recent macro-prudential policies announced by European national authorities.¹⁶ The table shows that – at least in the central and eastern European countries – the adjustment of reserve requirements has been the most common macro-prudential measure adopted to curb both excessive credit expansion and foreign currency lending. At its simplest level, this measure means that banks are required to keep more liquidity in reserve and use less for lending, which should have a dampening effect on credit growth. However, within the euro area, which is characterised by a single, centralised monetary policy, reserve requirements cannot be used as a tool to target excessive credit growth in individual countries.

With regard to measures aimed more specifically at addressing housing market imbalances, a cap on LTV ratios appears to be the most common solution. An LTV cap increases the borrower's equity stake in the property, which creates incentives to service the loan and lowers the bank's losses in the event of borrower default (so-called "loss given default"). Both of these effects improve the resilience of the financial system and can potentially also lower mortgage credit growth. A related, but less frequently used, measure is a cap on the DTI ratio, which limits the size of the debt (or the cost of servicing the debt) relative to the borrower's income. Adjustments to (mortgage) risk weights and bank provisioning rules have also been introduced in a number of countries.

Table A.1 Implementation of macro-prudential policies targeting housing market imbalances and (excessive) lending in foreign currency¹⁾

	Capital measures		Provisioning measures	Liquidity measures		Creditworthiness of borrowers		Restrictions on mortgage lending
	Counter-cyclical capital requirements	Risk-weights measures		Reserve requirements ³⁾	Foreign currency liquidity requirement	Loan-to-value ratio	Debt-to-income/Debt service-to-income ratio	
Belgium		X						
Bulgaria		X	X	X,•				
Croatia	X	•	X,•	X,•	•			X
Denmark						X		
Estonia		X		X,•				
Greece							X	
Hungary				X,•		X,•	•	•
Ireland		X						
Latvia				X,•		X		
Lithuania				X,•		X		
Netherlands						X		
Norway	X	X				X		
Poland		•		X,•		X,•	X,•	
Romania	• ²⁾		X,•	X,•		X	X,•	
Slovakia				X,•		X		
Slovenia				X,•				
Spain		X	X					
Sweden		X				X		
Switzerland	X	X						

Sources: Vandenbussche et al., op. cit.; Shim et al., op. cit.; and national authorities.

Notes: 1) A dot (•) indicates a measure related to foreign currency. 2) Refers to a maximum ratio of foreign loans to own funds. 3) The dot for Croatia refers to mortgage, consumer and corporate loans. The dot for Poland refers to mortgage loans only.

¹⁶ See, for example, Shim, I., Bogdanova, B., Shek, J. and Subeluyte, A., "Database for policy actions on housing markets", *BIS Quarterly Review*, BIS, September 2013; and Vandenbussche et al., op. cit.

Several European countries have also adopted measures to deal with risks stemming from excessive foreign currency lending. Especially in many central and eastern European countries, lending in foreign currency was particularly high in the period preceding the start of the global financial crisis. These measures include qualitative measures, such as warnings and recommendations, as well as tools such as binding capital requirements for foreign currency loans, risk weight surcharges, stricter loan classification and provisioning rules, more stringent reserve and liquidity requirements and tight LTV and DTI ratios. Some countries have also implemented a direct (temporary) prohibition on foreign currency lending to certain categories of customers. The purpose of these measures was to make financial institutions internalise the risks of foreign currency lending; to make foreign currency borrowing more expensive; to increase the resilience of the financial system through higher loss absorbency capacity; and to enhance borrowers' creditworthiness, particularly of unhedged borrowers.

Not all EU countries with a high level of foreign currency lending have implemented macro-prudential policies to the same extent.¹⁷ Croatia has been the most active country in terms of the number of measures implemented, followed by Hungary, Poland and Romania. The Czech Republic has not implemented any measures, despite a non-negligible share of foreign currency loans to non-financial corporations. In response to the recent financial crisis and falling domestic economic activity, national macro-prudential policies were eased in most central and eastern European countries between 2008 and 2009.

In September 2011 the ESRB issued a Recommendation to EU Member States with a view to increasing the effectiveness of macro-prudential policies directed at addressing the risks to financial stability associated with excessive foreign currency lending.¹⁸ The ESRB recommended that national supervisors upgrade their toolkit of policy options and avoid regulatory arbitrage, which is believed to have undermined the effectiveness of such policies in the EU.¹⁹ In this respect, the recommendations suggest reciprocity in macro-prudential policy implementation. National authorities of the home Member State of financial institutions providing cross-border services or operating through branches should impose measures on foreign currency lending to the residents of the host Member State in question which are at least as stringent as those introduced by the authorities of the host Member State. The EU-wide application of these recommendations is necessary to make regulatory arbitrage less efficient and more costly.

The ESRB recommended macro-prudential policy action against risks related to foreign currency lending

POLICIES TO ADDRESS HOUSING MARKET IMBALANCES

Some factors underlying housing market imbalances

Since the mid-1990s many European countries have experienced significant increases in house prices and mortgage borrowing, driven by several factors ranging from economic developments and financial innovations, such as interest-only loans, to changes in regulation (see Chart A.1). Whereas in some countries (such as Ireland and Spain) the trend of increasing house prices and household debt reversed with the onset of the financial crisis, other countries (such as Norway

¹⁷ Some non-euro area central and eastern European countries believe that measures to restrict foreign currency lending would undermine confidence in their currency boards.

¹⁸ *Recommendation of the European Systemic Risk Board of 21 September 2011 on lending in foreign currencies*, ESRB/2011/1 (OJ C 342, 22.11.2011, p.1). See also *Guidelines on capital measures for foreign currency lending to unhedged borrowers under the supervisory review and evaluation process (SREP)*, EBA/GL/2013/02, European Banking Authority (EBA), December 2013.

¹⁹ Borrowers have been able to circumvent national policies not only through cross-border lending but also through lending by the shadow banking sector. Vandenbussche et al. (op. cit.) also report that foreign banks with subsidiaries booked loans with the parent institution or with a non-bank subsidiary, instead of with their local bank affiliates, so as to avoid prudential regulation on local banks.

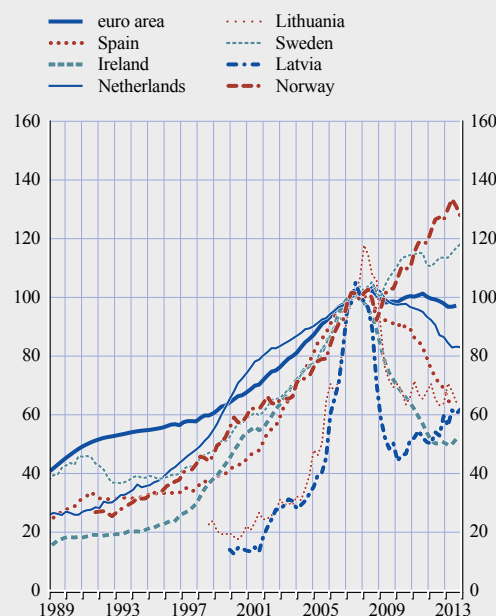
and Sweden) experienced a continued increase in house prices and household indebtedness that was fuelled by low interest rates.

The divergence in trends across countries suggests that housing and credit markets are driven not only by global economic developments, but also by national considerations. For example, in some countries, there has been a significant migration of people towards major cities. To the extent that housing construction has not kept pace with demand, this influx has contributed to a rise in urban house prices. In addition, strict national regulation of land use in countries such as the Netherlands and Sweden puts further limits on the construction of new housing.

Fiscal policies can also set incentives for mortgage borrowing. For example, the right to tax deductions for mortgage interest payments lowers the cost of borrowing. By contrast, stamp duties and other levies can increase the cost of real estate transactions.

Chart A.1 Residential property prices in selected European countries

(index = 2007 = 100)



Source: ECB.

Country experience with macro-prudential policy targeting housing market imbalances

A cap on LTV ratios is one of the most common macro-prudential measures applied by European countries. This analysis focuses on the implementation of caps on LTV ratios in selected countries. Evidence shows that the impact of these caps varies significantly depending on country-specific circumstances.

Household debt in the Baltic countries (Estonia, Latvia and Lithuania) remains below the euro area average, but the rates of growth in these countries were among the highest in the EU between 2004 and 2007.²⁰ At the same time, property and consumer prices increased substantially. This development was driven, inter alia, by a booming economy and by the expansion of foreign banks in the region. In March 2007 Latvia introduced a LTV cap of 90% on mortgage lending as part of a broader effort to combat inflation and promote a more sustainable credit market.²¹ According to the national authorities, the LTV cap was effective in the sense that it implied a binding constraint for many potential house buyers.²² However, it is hard to distinguish the pure effect of these measures on house prices and credit growth, as the decline in mortgage lending was accompanied by changes in parent banks' strategy and the severe economic downturn.

Lithuania experienced similar developments, although they were somewhat less severe than in Latvia. As the Lithuanian economy recovered from the financial crisis, the Responsible Lending

²⁰ Lithuania is not a member of the euro area. Estonia and Latvia joined in 2011 and 2014 respectively.

²¹ At the same time, several other fiscal and prudential measures were taken, such as increased and differentiated stamp duty on real estate transactions depending on the number of properties already held by the purchaser; differentiated stamp duty on mortgage collateral registration; and the introduction of 25% capital gains tax on the difference realised between a property purchase and sale price where the seller has held the property for less than 60 months.

²² See *Financial Stability Report*, Latvijas Banka, 2007.

Regulation was adopted in November 2011 to prevent a renewed build-up of systemic risk. The Regulation provided for an 85% LTV cap, a 40% DTI cap and a maturity limit of 40 years to apply to all new mortgage lending. The introduction of these measures coincided with a slight decline in house prices, but did not have any major impact on credit growth in Lithuania.

For most of the period since 2000, household finances in the Netherlands, Norway and Sweden have been characterised by a rising debt burden, high LTV ratios on mortgage loans and a high use of interest-only loans.

In the Netherlands, fiscal incentives to promote home ownership have been particularly strong. The right to fully deduct mortgage payments from taxable income has induced households to maintain a high level of borrowing and, instead of amortising the loans, to place their savings in financial assets with a higher expected return. Household borrowing was facilitated by increasing LTV ratios and in 2009 the average notional LTV ratio on new lending stood at 120%.²³ The rise in house prices during most of the 2000s, coupled with high LTV ratios as well as low repayment rates, resulted in one of the highest levels of gross household debt in the EU.²⁴

Since the onset of the financial crisis in 2007, the fall in property prices has left around 30% of the Dutch homeowners with a mortgage higher than the value of their property.²⁵ This sparked calls for national reforms of the housing and mortgage markets and, in August 2011, the Dutch authorities decided on an LTV cap of 106% effective from 2012. The LTV cap will gradually be reduced to 100% by 2018. At the same time, it was announced that the mortgage interest rate deductibility scheme would gradually become less advantageous, especially for high-earners. From 2013, new mortgage debt has to be paid back over 30 years in order to be tax deductible. From 2014, the maximum deductible tax rate will fall from 52% (the highest income tax bracket) to 38%, in steps of half a percentage point over 28 years. The simultaneous downturn of the economy, as well as the observation that the house price decline took place in anticipation of, rather than after, the policy measures, makes it difficult to disentangle the impact of any single macro-prudential measure on house prices and credit growth.

Several reforms of the Dutch housing and mortgage market

The Norwegian economy and property market were largely shielded from the global economic slowdown triggered by the recent financial crisis. Instead, in the low interest rate environment prevailing in Norway after the crisis, the growth in property prices and household indebtedness was among the strongest in Europe. In order to contribute to a more sustainable housing market development, the national supervisory authority introduced an LTV cap of 90% in March 2010.²⁶ However, the cap was introduced merely as a guideline with certain exceptions²⁷ and in October 2010 almost two-fifths of new mortgage loans still had an LTV ratio above 90%.²⁸ Unsurprisingly, the effect on mortgage credit growth and house prices was limited. In the light of this development, the LTV cap was lowered to 85% in December 2011. Subsequent mortgage market surveys show a gradual reduction in high LTV lending.²⁹ In 2013, house price growth and credit growth slowed down significantly. This may partly be a lagged effect from the LTV cap and partly attributable to the implementation of more stringent Basel III capital requirements. In December 2013 the Norwegian authorities activated the counter-cyclical capital buffer and in early 2014 a risk-weight

23 Although there are some caveats with respect to data quality, see, for example, Vandevyvere, W. and Zenthöfer, A., “The housing market in the Netherlands”, *Economic Papers*, No 457, European Commission, 2012.

24 In the third quarter of 2013, outstanding debt of households amounted to 249.1% of households’ gross disposable income.

25 *Overview of Financial Stability*, De Nederlandsche Bank, spring 2014.

26 The guidelines also included an amortisation requirement for LTV ratios exceeding 70% and a stress testing of the borrower’s debt repayment ability (given a 5% increase in interest rates).

27 For example, if borrowers posted additional collateral.

28 *Boliglånsundersøkelsen*, Finanstilsynet, 2011.

29 *Boliglånsundersøkelsen*, Finanstilsynet, 2012 and 2013.

The LTV cap had a temporary effect on credit growth in Sweden

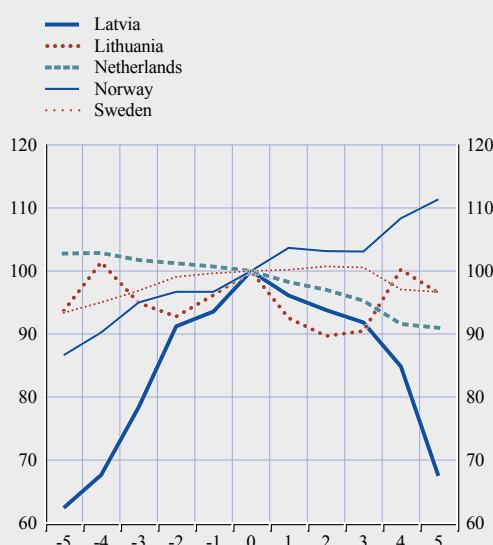
floor of 20% for mortgage loans was introduced to further strengthen banks' resilience against housing market shocks.

In Sweden, house prices declined somewhat after the failure of Lehman Brothers in September 2008, but rebounded strongly in the low interest rate environment prevailing thereafter. In order to protect consumers and avoid unsustainable developments on the credit market, the Swedish supervisory authority introduced an LTV cap of 85% in October 2010. Previously, lending up to 95% of a property's market value had not been unusual as banks competed for market share in a growing market. The LTV cap indeed broke the trend of rising LTV ratios.³⁰ House price inflation also levelled off temporarily in 2011. However, since properties were purchased at a higher price than last sold, credit growth and household indebtedness continued to rise. Thus, the 85% LTV cap only had a temporary effect on the credit growth rate. More recently, Swedish authorities have introduced a floor of 15% on banks' mortgage risk weights.

Charts A.2 and A.3 summarise the impact of LTV cap implementation on residential property prices and household credit growth. In Latvia, the LTV cap, in conjunction with other measures, contributed to a dampening of house prices and credit growth, but it was adopted too late to protect banks and borrowers from the housing market downturn that was triggered by the financial crisis. In Lithuania, the LTV ratio requirement seems to have dampened house prices, but not the rate of credit growth. In the Netherlands, the downward trend in house prices continued, whereas in Norway house prices continued to rise although credit growth slowed down somewhat. House prices and the rate of credit growth in Sweden did not change materially following the introduction of the cap.

Chart A.2 Residential property prices before and after introduction of LTV caps

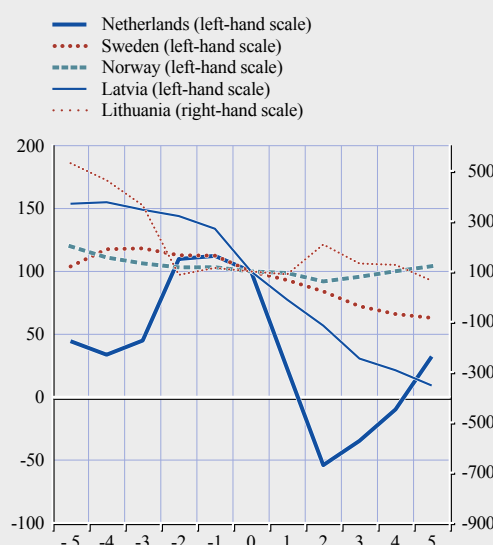
(index = 100 in quarter of LTV cap implementation)



Source: ECB.
Notes: The x-axis shows the deviation in quarters, from the quarter when the LTV cap was introduced. Data refer to single family house prices.

Chart A.3 Household credit growth before and after introduction of LTV caps

(index = 100 in quarter of LTV cap implementation)



Sources: ECB and Norges Bank.
Note: The x-axis shows the deviation in quarters, from the quarter when the LTV cap was introduced.

30 The Swedish Mortgage Market 2013, Finansinspektionen, March 2013.

A common denominator across countries seems to be that LTV caps were only implemented after a long period of strong house price inflation and credit growth. This may have reduced the potential counter-cyclical impact of the measures.

Although the LTV cap is a standard tool to address housing market imbalances, some countries have taken other measures. For example, in December 2013 the Belgian authorities required all banks that determine mortgage risk weights via internal models (the internal ratings-based (IRB) approach) to increase the weights by 5 percentage points.³¹ Switzerland has introduced a counter-cyclical capital buffer for Swiss banks' risk-weighted residential mortgage exposures. The buffer rate was initially set at 1%, effective from 1 September 2013, but will increase to 2% from July 2014. The Swiss authorities have pointed out, however, that using the counter-cyclical capital buffer as a macro-prudential instrument poses several challenges. First, identifying unsustainable developments in credit markets is inherently difficult. Second, practical experience remains limited. Moreover, since the Swiss counter-cyclical capital buffer was activated while other measures aimed at dampening the build-up of systemic risk in the mortgage market were in place, it is difficult to distinguish the impact of individual policies.³²

POLICIES TO ADDRESS EXCESSIVE LENDING IN FOREIGN CURRENCY AND EXCHANGE RATE RISK

Drivers of lending in foreign currency

Bank lending in foreign currency represents a large share of total lending to households and non-financial corporations in some EU Member States, mainly in central and eastern Europe (see Chart A.4). In Estonia, Latvia, Slovenia and Slovakia, either household or corporate lending in foreign currency accounted for at least 30% of total lending in the respective category before these countries joined the euro area. Today, the share of foreign currency lending in total lending is particularly high in Bulgaria, Hungary, Lithuania and Romania, ranging from 39% to 70% for loans to households, and from 51% to 74% for loans to non-financial corporations.³³ In non-euro area EU Member States with a high share of foreign currency lending, most such loans are denominated in euro. However, households in Hungary and Poland and non-financial corporations in Hungary and Romania also borrow in other currencies (especially Swiss franc).

Foreign currency lending both to households and to corporates

In some central and eastern European countries, foreign currency lending tended to grow at a faster rate than lending in domestic currency, particularly between 2007 and 2009. The difference in the rate of growth of both types of loans was particularly high in Lithuania and Hungary, peaking at 74% and 52% respectively in the first half of 2008. In the case of Bulgaria and Poland, the difference in the rate of growth was particularly elevated in the second half of 2008, at about 41% and 46% respectively. In Romania, where comparable data collected by the ECB are available over a relatively shorter time period, lending denominated in foreign currency grew more rapidly than borrowing in domestic currency until mid-2012, and particularly in 2008. In the Czech Republic, the difference between the rate of growth of loans denominated in foreign and that of lending in domestic currency has not exhibited any clear trend. Since 2008, the difference in the rates of growth has fallen sharply across central and eastern European countries, and remained at low and sometimes negative levels.

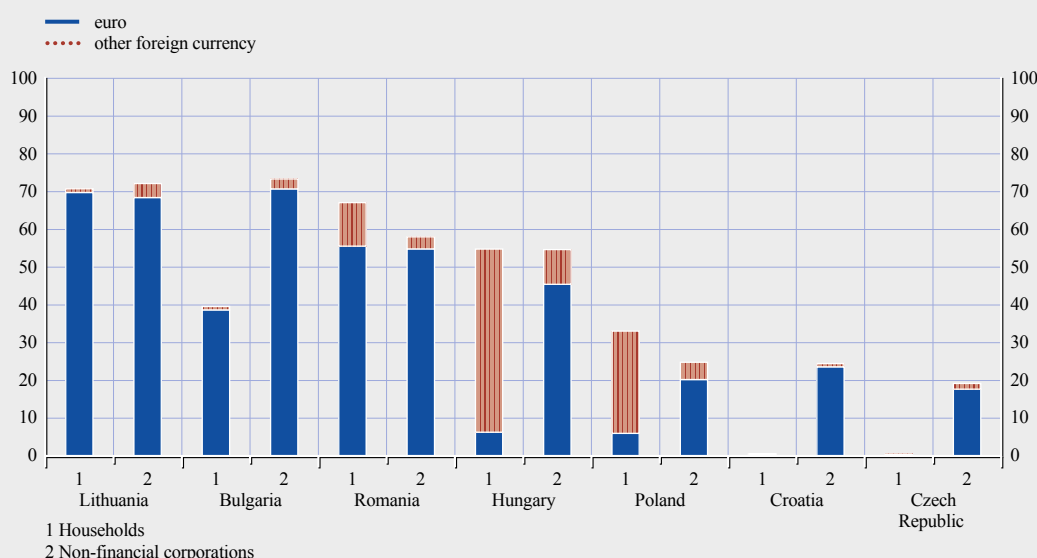
31 *Report 2013 – Economic and Financial Developments*, National Bank of Belgium, February 2014.

32 Danthine, J.-P., "Implementing macroprudential policies: the Swiss approach", *Financial Stability Review*, No 18, Banque de France, April 2014.

33 Among the euro area Member States, Austrian households have significant loans in foreign currency, representing about 20% of the outstanding stock in January 2014. In the remaining euro area countries, the share of foreign loans to households and non-financial corporations did not exceed 15% in January 2014.

Chart A.4 Foreign currency lending to households and non-financial corporations in central and eastern European countries

(January 2014; percentage of total outstanding loans)



Source: ECB.

Notes: Data refer to MFI lending to resident counterparties as a percentage of total outstanding loans. The shares are underestimated for Croatia owing to the classification of loans indexed to a foreign currency as loans in domestic currency. These loans represented about 68% of total loans at end-2013.

Expansion of foreign banks was a reason for foreign currency lending

Several factors have contributed to the high level of foreign currency lending in the EU during the 2000s. First, several central and eastern European countries experienced large capital inflows associated with an increasing presence of foreign bank subsidiaries and branches. Banks were attracted by the high profitability of banking in these economies and adopted aggressive strategies to gain market share.³⁴ Many of the foreign banks obtained funding via their parent institutions and also tapped wholesale markets abroad.³⁵ The lower cost of funding in foreign currencies compared with that in domestic currency played a major role in lowering foreign currency lending rates and making borrowing in foreign currency more attractive for customers.³⁶ Moreover, the risk of foreign currency borrowing was perceived to be low, even for unhedged customers, in particular in countries which had pegged their currencies to the euro. In countries with a floating exchange rate regime (such as Hungary, Poland and Romania), expectations of further currency appreciation supported demand for foreign currency loans.

Country experiences with macro-prudential policies related to foreign currency lending

Many of the central and eastern European countries have adopted a wide range of macro-prudential policies. This section focuses on the main measures adopted in selected countries to curb lending in foreign currency.

After joining the EU in 2004, Poland experienced a strong expansion of output and credit. Foreign currency mortgage loans to households (in Swiss francs) were popular and grew rapidly.

³⁴ See “Regional Economic Outlook: Europe – Building Confidence”, *World Economic and Financial Surveys*, IMF, Washington, D.C., October 2010. See also Szpunar, P.J. and Glogowski, A., “Lending in foreign currencies as a systemic risk”, *Macro-prudential Commentaries*, Issue 4, ESRB, December 2012.

³⁵ In some cases, foreign banks have also provided direct cross-border lending to residents.

³⁶ For a comparison of lending rates in domestic currency and rates in euro and in Swiss francs, see the ESRB Recommendation on lending in foreign currencies, op. cit.

The authorities considered the expansion of such lending to be a risk because a depreciation of the Polish zloty, an increase in Swiss franc interest rates or a deterioration of macroeconomic conditions would severely undermine households' mortgage repayment capacity.³⁷ In response, in 2006 the authorities issued "Recommendation S", addressed to banks, which marked the start of a series of macro-prudential measures to reduce the risks stemming from foreign currency lending. This recommendation induced banks to enhance their risk management related to such lending (by, inter alia, including depreciation buffers in the assessment of borrower creditworthiness) and to inform customers of the related risks. The announcement about the pending recommendation had a deterrent effect, as the growth rate of foreign-denominated housing loans slowed in the first half of 2006 in favour of domestic currency loans even before the recommendation came into force in mid-2006 (see the event analysis below). A decreasing interest rate differential to the Swiss franc also contributed to the slowing down.³⁸ In 2007 the authorities also raised risk weights for foreign currency mortgage loans to households. The authorities introduced binding liquidity limits in 2007 (very similar to those agreed later in Basel III concerning both short and long-term liquidity), which took effect in mid-2008. This helped banks to withstand liquidity stress in 2008-09.³⁹ The intensification of the financial crisis in 2008 put an end to the fast credit expansion in Poland as banks tightened lending standards and consumer confidence worsened. The Polish zloty depreciated by 30-40% with respect to major currencies, increasing the burden for borrowers with debts denominated in foreign currency. However, the quality of foreign currency mortgages did not worsen significantly owing to more stringent requirements for the assessment of borrower creditworthiness provided for by Recommendation S and a decrease in Swiss interest rates, which translated directly into lower debt service costs given the fully floating nature of mortgage interest rates.

Since the financial crisis, the rate of growth of mortgages in foreign currency has fallen in Poland compared with those in domestic currency. Although there has been no major pick-up in foreign currency lending or credit growth, macro-prudential and supervisory policies have been tightened. In particular, between end-2010 and early 2011 the authorities introduced more stringent DTI ratios for foreign currency-denominated loans to unhedged borrowers (Recommendation T and amendments to Recommendation S) and in mid-2012 they further raised risk weights for foreign currency-denominated retail exposures. Since mid-2012, the issuance of foreign currency mortgage loans has been minimal and old loans are not renewed which means that the total stock of foreign currency loans is diminishing. From July 2014, borrowers are allowed to borrow only in the same currency as their income.

The Romanian financial system is dominated by foreign commercial banks. In the period from January 2005 to June 2008, household disposable income grew at an average annual rate of around 20%, while household debt increased at a rate of 77%. The lending outgrew local sources of funding with the gap covered by credit institutions' reliance on foreign funding, primarily from parent banks. The share of lending denominated in foreign currency stood at about 62% at end-2004. Against this backdrop, the Romanian authorities started taking measures to reduce the risks stemming from foreign currency lending. In 2004 Banca Națională a României increased the requirements

*Banks in Romania
circumvented
macro-prudential
policy measures*

37 Furthermore, the flow of foreign currency lending had a considerable adverse impact on the monetary policy transmission mechanism, as a tightening of domestic monetary policy increased the inflow of foreign capital and foreign currency lending.

38 *Financial Stability Review*, Narodowy Bank Polski, 2007.

39 Since part of the growth of foreign currency lending was being financed from parent companies of banks operating in Poland, it also led to increasing liquidity risks for Polish banks owing to the growing share of foreign funding. The purpose of introducing liquidity limits was both micro- and macro-prudential, as they underlined the need for stable and sustainable funding of banks' credit portfolios.

regarding mandatory reserves to be held with the central bank for foreign currency liabilities.⁴⁰ The main step was taken in September 2005 when the authorities introduced a limit on credit institutions' exposures to a maximum of 300% of their equity when granting foreign currency loans to unhedged borrowers. However, banks circumvented this regulation by originating foreign currency loans and then selling the loan portfolios to non-residents, including parent companies. Moreover, the exposure limit was abandoned when Romania joined the EU in 2007.⁴¹ In the summer of 2008 the authorities introduced more conservative lending standards for household loans. This new regulatory framework introduced a mandatory evaluation of borrowers' debt repayment capacity in a stress scenario over the entire life of the loan, incorporating adverse scenarios for interest rate and currency risks. Starting in 2011, the Romanian authorities imposed stricter standards for foreign currency loans granted to households (especially for Swiss franc and USD-denominated loans), in line with ESRB recommendations on foreign currency lending. The LTV caps are differentiated by the type of borrower and currency⁴² and, for setting DTI maximum levels, the income risk was added to interest rate and currency risks. The Romanian authorities assess that the DTI and LTV caps were harder to circumvent than other macro-prudential measures, mainly because they address the credit risk *ex ante*. All in all, the Romanian authorities consider that the country's experience with DTI and LTV caps shows that these instruments are efficient (i) in curbing high credit growth and (ii) in ensuring that both debtors and creditors are able to withstand possible adverse shocks in real estate prices, domestic currency depreciation or interest rates hikes.

Croatia implemented higher risk weights on foreign currency loans

In addition to the driving factors common to most of the central and eastern European countries, certain idiosyncratic factors contributed to the high level of foreign currency lending in Croatia during the 2000s. In particular, domestic residents' preference for holding foreign currency deposits was the main reason for banks to provide loans in, or indexed to, foreign currency. Between 2003 and 2008, Croatia used a wide range of instruments to reduce capital flows, limit foreign currency lending and improve bank resilience. The main measures included adjustments to reserve requirements, a foreign currency liquidity requirement, limits on banks' currency mismatch and higher risk weights on foreign currency loans. The effects of this macro-prudential policy implementation have been analysed by Kraft and Galac (2011). Because of the simultaneous changes to multiple measures, they find it difficult to draw conclusions on the effectiveness of individual measures. Banks also avoided the regulations by channelling loans via parent banks, which reduced the impact of the measures on credit growth. Nevertheless, Kraft and Galac find that the regulations contributed to reinforcing banks' resilience to financial shocks.⁴³

In Hungary, private sector credit growth outpaced nominal GDP growth during most of the 2000s, resulting in an increasing debt service burden that was reversed after the onset of the financial crisis in late 2008 and in 2009. Rapid credit growth before the crisis was driven by easing lending standards, particularly on loans to households, including longer maturities, higher LTV ratios and higher debt-service ratios for housing mortgages. As most of the new borrowing was in foreign currency

40 Banca Națională a României introduced minimum reserve requirement (MRR) measures at the beginning of 1990s. These measures have been used more actively since 1998 in order to reduce excess liquidity in the banking sector. In 2002 Banca Națională a României used the MRR to increase the cost of foreign currency lending and to improve the efficiency of the monetary policy transmission mechanism. In November 2002 the MRR rate on Romanian lei-denominated liabilities was decreased to 18%, from 22%, while the MRR rate for foreign currency-denominated liabilities was increased to 25%, from 22%. In August 2004 the MRR rate for foreign currency-denominated liabilities was increased to 30% again.

41 The exposure limit was abandoned as it was not in compliance with the *acquis communautaire*. Applicant countries have to accept the *acquis* before they can join the EU.

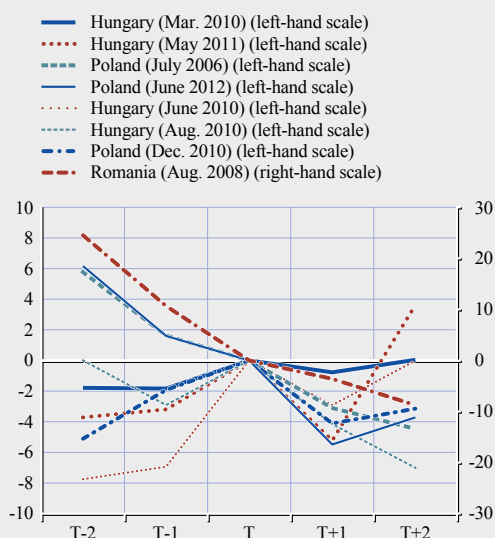
42 The LTV caps were set as follows: 75% for consumer loans, 85% for mortgage loans denominated in local currency, 80% for mortgage loans to hedged borrowers denominated in foreign currency, 75% for mortgage loans to unhedged borrowers denominated in euro and 60% for mortgage loans to unhedged borrowers denominated in other foreign currency.

43 Kraft, E. and Galac, T., "Macroprudential regulation of credit booms and busts – the case of Croatia", *Policy Research Working Paper*, No 5772, The World Bank, August 2011.

(including Japanese yen and Swiss franc), both the household and the corporate sectors' net foreign currency liabilities increased sharply. To address risks in the banking system associated with a potential depreciation of the Hungarian forint, which would have undermined the debt repayment capacity of unhedged borrowers, the authorities implemented a series of measures as from 2010. In March 2010 the authorities introduced lower maximum LTV ratios for mortgages and car loans in foreign currency, and in June 2010 they introduced more stringent DTI ratios for foreign currency-denominated loans. These measures, together with increased customer awareness of the exchange rate risks attributable to high exchange rate volatility, are likely to have contributed to lower demand for foreign currency loans in the first half of 2010. At the same time, the prohibition on foreign currency-denominated mortgage lending effective from August 2010 practically eliminated such lending by the end of that year. In July 2011 the authorities reintroduced foreign currency lending, albeit with very tight credit conditions.

Chart A.5 Rate of growth of loans in foreign and domestic currency in central and eastern European countries before and after the implementation of macro-prudential policies

(percentage changes per annum)



Source: ECB.

Notes: "T" is the time when a macro-prudential policy measure was implemented. Data are available for Croatia and for Romania from 2007. Bulgaria and Lithuania implemented monetary policy measures (reserve requirements) to curb lending in foreign currency which are not assessed here.

Chart A.5 shows an event study analysis of the evolution of the difference in the annual rate of growth of foreign and domestic currency loans to households in Hungary, Poland and Romania, before and after the implementation of measures directed at curbing foreign currency lending. The measures evaluated are those outlined above. Controlling for the rate of growth of loans in domestic currency is important in order to capture general trends in lending that might be affecting the lending behaviour of banks and borrowers.

Evidence presented in Chart A.5 shows that such measures appear to have been effective in curbing lending in foreign currency, although the impact in most cases appears to weaken shortly after the policies are implemented. In some countries, the rate of growth of lending in foreign currency was already being outpaced by lending in domestic currency before the implementation of macro-prudential measures, perhaps in anticipation of such measures (for example, in Poland in July 2006 and June 2012; and in Romania in August 2008).

CONCLUDING REMARKS

This article has described recent experiences with national macro-prudential policies directed at addressing imbalances in housing markets and excessive foreign currency lending in European countries. Going forward, macro-prudential policy analysis in the EU should take into account the preliminary lessons learned from these experiences. The experiences outlined above show that a broad range of policies have been used by countries for macro-prudential purposes. This can partly be explained by the fact that underlying macro-financial imbalances, and thus the applied policy

Countries have taken a range of measures to address macro-financial imbalances

response, differ between countries. It may also be due to the fact that local institutional set-ups influence policy responses.

Many countries have addressed their macro-financial imbalances by taking a range of measures. One common strategy is to implement macro-prudential policy in incremental steps – perhaps because it is difficult to carry out an ex ante impact assessment of each policy measure. Overall, the evidence surveyed indicates that macro-prudential policies can be effective in addressing macro-financial imbalances. However, the appropriate timing of implementation of macro-prudential measures is important and, with the benefit of hindsight, it seems that many countries should have acted earlier. In some instances, the macro-prudential policy tools may not have been sufficient to counter the effect of expansive fiscal policies and other regulations. This points to the importance of the overall economic policy mix. Moreover, some macro-prudential policy measures seem to have been easily circumvented by those to whom they were addressed.

In the EU, macro-prudential policy is an area that is in an early stage of development. As more countries gain experience from macro-prudential policy implementation, further knowledge will be obtained on the effectiveness of individual measures and on the circumstances under which this is the case. Meanwhile, macro-prudential policy-makers should take the experiences of other countries into account, as there are some helpful conclusions to be drawn.

B IDENTIFYING EXCESSIVE CREDIT GROWTH AND LEVERAGE¹

Excessive credit growth has often been associated with the build-up of systemic risks to financial stability. With the entry into force of a new macro-prudential policy framework in the EU on 1 January 2014, a set of policy instruments has been made available to regulators to address such risks by curbing excessive leverage and/or imposing capital buffers which increase the resilience of the system against potential future losses.

This special feature presents an early warning system designed to support macro-prudential policy decisions. Drawing on the historical experience of EU countries, the model aims to assess whether observed leverage dynamics might justify the activation of macro-prudential tools such as the counter-cyclical capital buffer proposed by the Basel Committee on Banking Supervision. The early warning indicators are based on aggregate credit-related, macroeconomic, market and real-estate variables, while the early warning thresholds are derived by considering conditional relationships between individual indicators in a unitary framework.

INTRODUCTION

Past financial crises, and in particular the global financial crisis, have shown that excessive credit growth often leads to the build-up of systemic risks to financial stability, which may materialise in the form of systemic banking crises. As mitigating systemic financial stability risks is the objective of macro-prudential policy, several macro-prudential tools have been designed to curb excessive leverage or to build up buffers against likely future losses. Such instruments include the counter-cyclical capital buffer proposed by the Basel Committee on Banking Supervision, as well as other capital instruments, such as the leverage ratio and the systemic risk buffer, and instruments directly targeting borrowers, such as loan-to-value and loan-to-income caps.

However, the application of macro-prudential policy is still at an early stage and much effort is currently being devoted to providing policy-makers with concrete advice on how to actually design macro-prudential instruments. Indeed, the macro-prudential policy strategy has been defined by the European Systemic Risk Board (ESRB) with reference to the *guided discretion* principle, whereby the exercise of judgement is complemented by quantitative information derived from a set of selected indicators and associated “early warning” thresholds. In particular, with respect to the counter-cyclical capital buffer, the Basel Committee on Banking Supervision identifies the aggregate private sector credit-to-GDP gap as a useful guide, as this variable would have performed well in signalling the build-up of excessive leverage in the past. However, policy-makers should supplement the signal coming from credit-to-GDP trend deviations with judgement based on a broader information set, as also suggested in the 2010 Basel guidance.²

Against this background, this special feature presents an early warning model to be used for identifying those periods in which the build-up of leverage can be defined as excessive and may warrant the activation of relevant macro-prudential instruments.³ As in any early warning exercise, the target event is defined first. In the present case, the model is designed to issue warning signals well ahead of systemic banking crises caused by excessive credit growth. The second step is the selection of the candidate early warning indicators: in this respect, the dataset used in this

An early warning model to identify excessive leverage

¹ Prepared by Lucia Alessi.

² See Basel Committee on Banking Supervision, “Guidance for national authorities operating the countercyclical capital buffer”, 2010.

³ For more details on the methodology, see Alessi, L. and Detken, C., “Identifying excessive credit growth and leverage”, *Working Paper Series*, ECB, forthcoming.

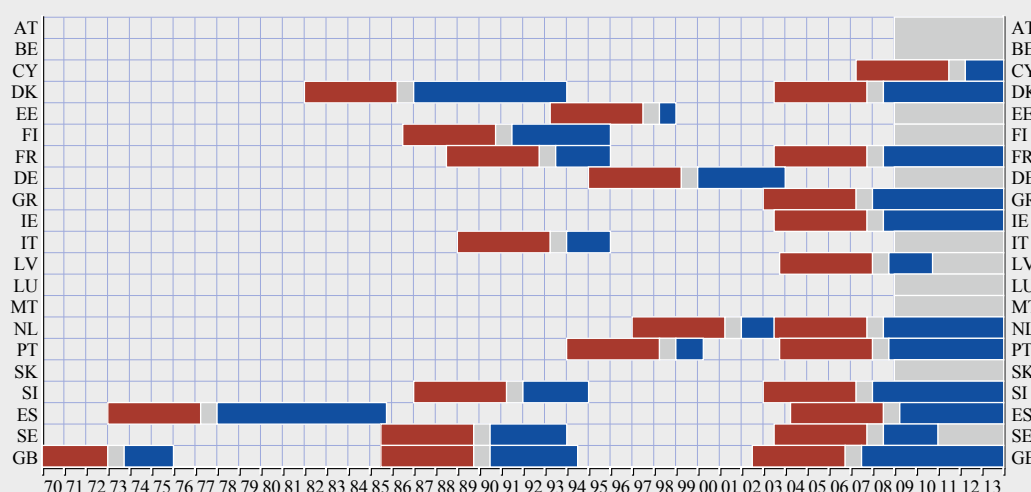
application comprises publicly available aggregate credit-related, macroeconomic, market and real-estate variables for the euro area countries together with the United Kingdom, Denmark and Sweden. The modelling technique is based on decision trees, in particular binary classification trees. One of the main advantages of this technology is that it takes into account the conditional relationships between indicators in setting the respective early warning thresholds. Finally, the in-sample and out-of-sample predictive performance of the model is evaluated.

DEFINING CREDIT-RELATED SYSTEMIC BANKING EVENTS

Standard banking crisis definitions include episodes in which: much or all of bank capital is exhausted; bank runs lead to the closure, merger, or takeover by the public sector of one or more financial institutions; there are significant signs of financial distress in the banking system; or significant banking policy intervention measures are required in response to significant losses in the banking system. However, macro-prudential tools such as counter-cyclical capital buffers and leverage ratios aim to avoid a broader array of circumstances than simply a banking crisis as defined in these terms alone. Therefore, the definition of a banking crisis used in this exercise, borrowed from the work of the European Systemic Risk Board Expert Group on Countercyclical Capital Buffers, is extended to include “near misses”, i.e. periods in which domestic developments related to the credit/financial cycle could well have caused a systemic banking crisis had it not been for policy action or an external event that dampened the credit cycle. Non-systemic banking crises and crises not related to the credit cycle are excluded.⁴

According to this definition, 25 episodes are identified in the countries under analysis over the period from the first quarter of 1970 to the end of 2013 (see Chart B.1). Owing to the time lag

Chart B.1 Pre-crisis and crisis periods



Sources: Detken, C. et al., “Operationalising the countercyclical capital buffer: indicator selection, threshold identification and calibration options”, *Occasional Paper Series*, ESRB, forthcoming and Alessi, L. and Detken, C., “Identifying excessive credit growth and leverage”, *Working Paper Series*, ECB, forthcoming.
Notes: Credit-related systemic banking crises are marked in blue; early warning signals are expected in periods highlighted in red; periods marked in grey are excluded from the analysis.

4 For details on this banking crises dataset, see Detken, C. et al., “Operationalising the countercyclical capital buffer: indicator selection, threshold identification and calibration options”, *Occasional Paper Series*, ESRB, forthcoming.

between the adoption of a macro-prudential measure and its entry into force, the early warning model is designed to identify excessive leverage sufficiently early, namely at least one year prior to the start of the crisis, and up to five years ahead.⁵ The periods in which the model is expected to issue warning signals are highlighted in red in Chart B.1, while periods marked in grey are not included in the analysis because they are too close to the outbreak of a crisis, or are not classifiable as pre-crisis, given that we do not know whether a crisis will actually materialise in the next few years. The crisis periods themselves (in black in Chart B.1) are, of course, also excluded.

A BROAD SET OF INDICATORS

A battery of indicators which could contain valuable information is considered. This broad set includes mainly financial variables, in particular various transformations of credit aggregates. The key aggregate is broad credit, covering loans and debt securities provided by the domestic banking sector to non-financial corporations and households. This is entered into the model in the form of year-on-year rates of growth, as well as the ratio to GDP and deviations of this ratio from its trend (i.e. the “gap”). This latter transformation has been suggested by the Basel Committee on Banking Supervision and is therefore referred to as the “Basel gap”.⁶ The narrower bank credit aggregate and sectoral credit aggregates are also considered, as well as global liquidity measures. With respect to debt service costs, the aggregate debt service ratio and sectoral debt service ratios are included. Finally, public debt also features in the pool of credit-related indicators.

Credit-related early warning indicators...

With respect to asset prices, the dataset comprises housing market indicators and equity price growth. Macroeconomic variables and interest rates are also considered, as they could be useful for conditioning the signals coming from credit-based indicators and asset prices.⁷

... asset prices and macroeconomic variables.

A MODEL FOR IDENTIFYING EXCESSIVE CREDIT GROWTH AND LEVERAGE

The model presented in this special feature aims to identify whether, in a given period, the European financial system is in a state of vulnerability owing to the build-up of excessive leverage, which in turn increases the likelihood and potential impact of a subsequent banking crisis. In such a situation, the activation of macro-prudential policy measures would be prudent. To this end, a purely statistical approach is adopted, based on decision trees.

A binary classification tree is a partitioning algorithm which recursively identifies the indicators and the respective thresholds that are able to best split the sample into the relevant classes, i.e. pre-crisis and tranquil periods. The output of the predictive model is a tree structure like the one shown in Chart B.4, with one *root* node, only two branches departing from each *parent* node (hence “binary” classification tree), each entering into a *child* node, and multiple terminal nodes (or “leaves”). Starting by considering all available indicators and threshold levels, the procedure selects the single indicator and threshold yielding the two purest sub-samples based on an impurity measure. A standard impurity measure is the Gini index:

Binary classification trees

$$GINI(f) = \sum_{i=1}^n f_i (1-f_i) = 1 - \sum_{i=1}^n f_i^2$$

⁵ For example, in the case of counter-cyclical capital buffers, banks are given one year to raise additional capital.

⁶ The Basel gap is computed with a recursive slowly adjusting (i.e. $\lambda=400,000$) HP filter, which implicitly assumes that the financial cycle is four times as long as the business cycle. As such a HP trend might be adjusting too slowly following a prolonged period of negative credit growth, an alternative gap computed with $\lambda=26,000$ is also considered, corresponding to a financial cycle which is twice as long as the business cycle.

⁷ All variables are entered into the model in real terms. Measures of funding liquidity (e.g. the LIBOR-OIS spread and the loan-to-deposit ratio) have not been included in the analysis owing to data availability issues.

The Random Forest...

where f_i is the fraction of periods belonging to each category i , with $i=1,2$ in this case. The algorithm proceeds recursively, by finding the best split at each node, so that one of the child nodes contains mostly pre-crisis periods while the other contains mostly tranquil periods. Once the logical structure is constructed on the basis of historical data, the tool can be used in real time to map the current value of a set of indicators into a single prediction, expressed as the probability of being in each of the classes.

The main drawback of the tree technology is that, while it can be very good in-sample, it is known not to be particularly robust when additional predictors or observations are included. This problem is overcome by using the “Random Forest” algorithm.⁸ This framework is a state-of-the-art machine learning technique which involves *bagging*, i.e. bootstrapping and aggregating, a multitude of trees. Each of the trees in the Forest is grown on a randomly selected set of indicators and country quarters. Once a new quarter of data is available, the prediction of the Forest will be based on how many trees in the Forest classify it as a pre-crisis or tranquil period.

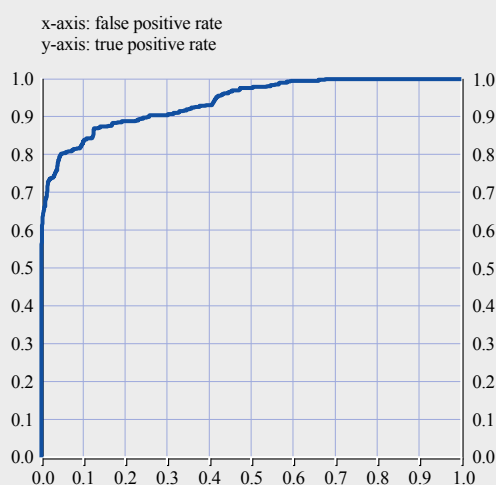
... and its out-of-sample predictive performance

Each of the trees in the Forest is in itself an out-of-sample exercise, as the observations that are not used to grow the tree (*out-of-bag* observations) can be put through the tree to get a classification. It is therefore possible to compute the total misclassification error of the Forest. Based on the out-of-sample error rate of a 100,000-tree forest grown on all of the considered indicators, the chance of misclassifying an incoming quarter of data is 6%. A more advanced measure of the performance of a classifier is the area under the receiver operating characteristic curve (AUROC). The receiver operating characteristic (ROC) curve plots the combinations of true positive rate (TPR) and false positive rate (FPR) attained by the model (see Chart B.2). The ROC curve of a random classifier will tend to coincide with a 45 degree line, corresponding to an AUROC of 0.5, while the AUROC of a good classifier will be closer to 1 than to 0.5. The ROC curve of the Random Forest presented in Chart B.2 corresponds to an AUROC above 0.9.

Measuring the indicators' importance

Finally, the Random Forest makes it possible to measure the importance of each of the input variables by evaluating the extent to which it contributes to improving the prediction. Chart B.3 shows the indicators' ranking derived from the Random Forest.⁹ Not surprisingly, since the model is designed to predict banking crises associated with a domestic credit boom, the most important indicator turns out to be bank credit, in the form of its ratio to GDP, followed closely by the gap derived with a very slowly adjusting trend. Global liquidity – in the form of both the global credit gap and the growth rate – turns out to be another key concept, ranking among the five most important indicators. The remaining two indicators among the top five are the level of household credit and the aggregate debt service ratio. In general, credit-to-GDP ratios appear helpful in assessing how vulnerable a country is because of excessive structural leverage rather than conjunctural developments, and are

Chart B.2 Receiver operating characteristic curve

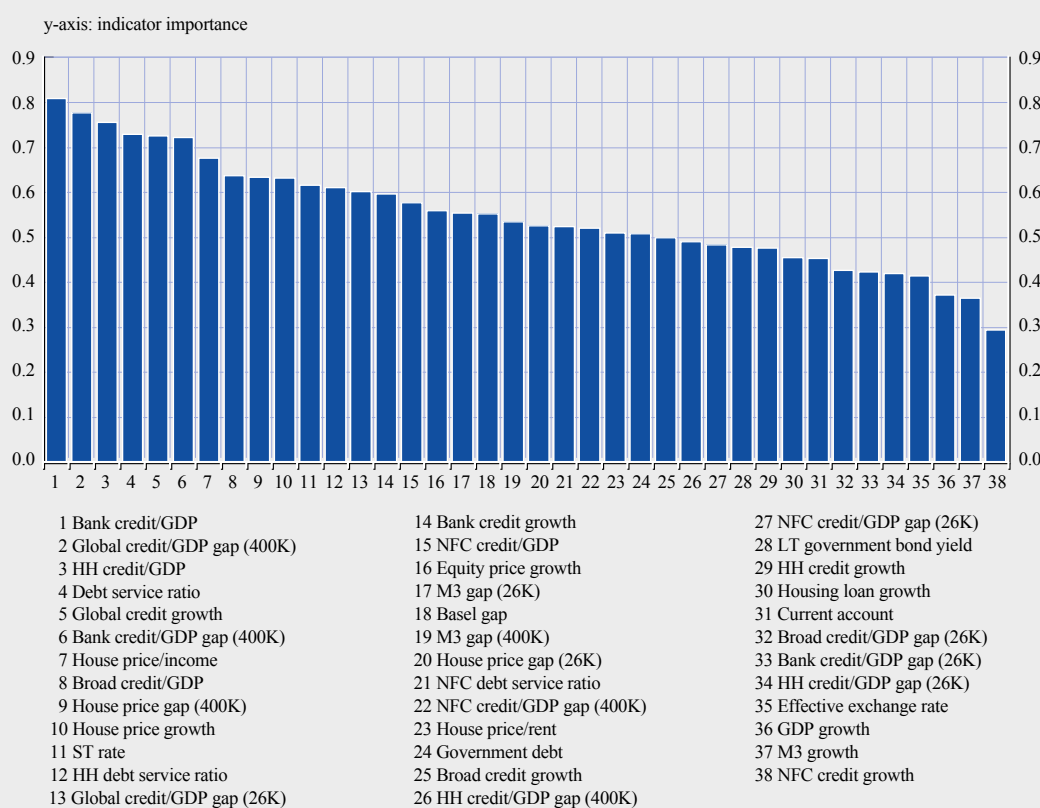


Source: Alessi, L. and Detken, C., “Identifying excessive credit growth and leverage”, *Working Paper Series*, ECB, forthcoming.

⁸ See Breiman, L., “Random Forests”, *Machine Learning*, Volume 45, Issue 1, 2001, pp. 5-32.

⁹ Since an element of randomness is inherent in the Forest, the ranking may vary slightly from replication to replication.

Chart B.3 Importance of indicators



Source: Alessi, L. and Detken, C., "Identifying excessive credit growth and leverage", *Working Paper Series*, ECB, forthcoming.

Note: The bars represent a normalised measure of the prediction error obtained by ignoring the information conveyed by a specific indicator.

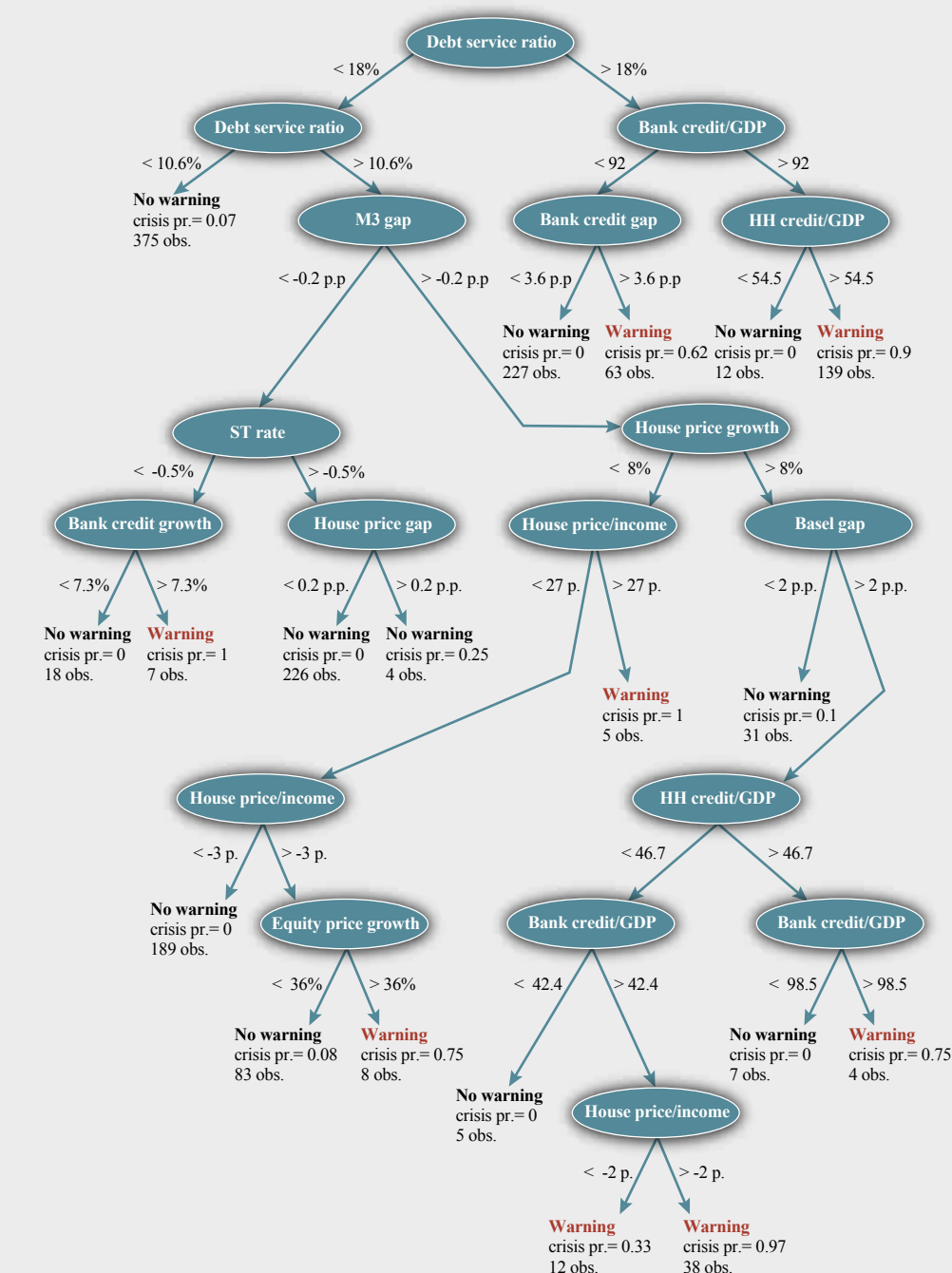
therefore useful in conditioning the information provided by gaps and rates of growth. As expected, the bank credit gap ranks relatively high, while the Basel gap, which considers broad credit, ranks lower, though still in the top half of all the indicators. Immediately following the top six indicators, there are some measures relating to house prices, namely the house price-to-income ratio, the house price gap and house price growth. Equity price growth ranks a little lower. Indeed, heated asset price growth might be associated with excessive credit growth fuelling a growing bubble. After considering the housing market, the Random Forest suggests that the real short-term rate should be looked at next, most likely because a low rate may encourage risk-taking in a search for yield. Also among the top half of all the indicators are the household debt service ratio, bank credit growth, the NFC credit-to-GDP ratio and M3 gaps.

THE EARLY WARNING TREE

Notwithstanding the remarkably good predictive performance of the Random Forest, this model is a black box and its predictions would be hard to link with a convincing narrative describing an identified risk, in particular if they would support the activation of macro-prudential tools. Therefore, this special feature also presents a benchmark tree, constructed on the set of key

*A benchmark
early warning tree
based on the key
indicators...*

Chart B.4 Early warning tree



Sources: Alessi, L. and Detken, C., "Identifying excessive credit growth and leverage", *Working Paper Series*, ECB, forthcoming.
 Note: In each terminal node (leaf) of the tree, the crisis probability corresponds to the in-sample crisis frequency associated with that particular leaf, while the number of observations indicates the number of country quarters ending up in that particular leaf, considering the historical data on which the tree has been grown.

indicators identified by the Random Forest and discussed above.¹⁰ The underlying preferences of the policy-maker are such that twice as much weight is attached to failing to identify excessive leverage compared with issuing a false alarm. To avoid overfitting, the tree shown in Chart B.4 has been grown by imposing a minimum number of eight country quarters per parent node and four country quarters per terminal node, while less relevant branches have been *pruned*.

The indicator appearing in the root node is the debt service ratio, associated with a threshold of 18%. According to end-2012 data, this threshold splits the sample equally, with around half of the countries ending up in the right branch and the other half in the left branch. The next node along the right branch of the tree corresponds to the bank credit-to-GDP ratio, with a threshold of 92. If this threshold is breached, the next relevant indicator is household credit as a percentage of GDP, with a threshold of 54.5%. At the end of 2012 a relatively large number of countries breached all of these thresholds, ending up in the “warning” leaf associated with a 90% in-sample crisis frequency. As cyclical developments might be less relevant along this branch of the tree, one could consider employing macro-prudential instruments like the systemic risk buffer to increase resilience in the system, given the elevated leverage identified by the model. However, this estimate of the probability of a crisis should be interpreted with caution for the following two reasons. The first is that the better the tree is at fitting in-sample data, the purer the leaves it will yield, with associated in-sample frequencies close to 1 or 0. However, in assessing a country’s situation, one should consider whether the relevant indicators only marginally exceed (or not) the respective thresholds. The second caveat relates to country specificities, which cannot be captured by the model. With respect to this leaf, for example, the inclusion of the debt service ratio could be misleading for specific countries that, for reasons not harmful for financial stability, have structurally high private sector debt. In such a case, a net debt concept taking into account accumulated private sector wealth would be more suitable.

If the bank credit-to-GDP threshold of 92 is not breached, the next relevant indicator is the bank credit gap with a threshold of 3.6 percentage points. If this threshold is breached, the crisis probability increases to above 60%. In this case, there would be a role for macro-prudential tools such as the counter-cyclical capital buffer.

Looking at the left branches of the tree, the main messages are as follows. If the debt service ratio is below 10.6%, the crisis probability is negligible. A relatively large number of countries, however, are in the middle range, with a debt service ratio between 10.6% and 18%. For these countries, essentially depending on the sign of the M3 gap, different variables become relevant. These indicators relate to the following: (i) house prices, in the form of house price growth and gap and in relation to income; (ii) equity prices; (iii) the Basel gap; (iv) the short-term real interest rate; (v) bank credit level and growth; and (vi) household credit. As an example, a country falling in the “warning” leaf associated with a house price-to-income ratio 27 points above its long-term average might consider adopting measures such as caps to loan-to-value and loan-to-income ratios.

With respect to the in-sample predictive performance of this benchmark tree, the true positive rate and the false positive rate (or share of type 2 errors) are equal to 85% and 4% respectively, while the share of type 1 errors is 15%. The noise-to-signal ratio is 5%. A more sophisticated measure of the usefulness of the model, taking into account the policy-maker’s greater aversion to type 1

... its in-sample
predictive ability...

¹⁰ Global liquidity variables are not included in the decision tree as they are not suited for such a model, given that they take the same value for all of the countries.

... and an out-of-sample exercise.

errors, indicates that a policy-maker using this tree increases his/her utility by 65% compared with ignoring it.¹¹

The out-of-sample performance of the Random Forest/early warning tree approach has been evaluated by using data up to the first quarter of 2006 only and ignoring whether the period starting in mid-2001 would later be classified as a pre-crisis period. Six of the eight countries for which the model would have issued a warning in mid-2006 actually experienced a crisis in the five subsequent years (France, Ireland, Spain, Sweden, Denmark and the United Kingdom). Overall, the crisis would have been correctly predicted for all of the large EU economies that did indeed later undergo one. A prompt policy reaction, assuming the current macro-prudential legislation had already been in place, would have meant, for example, that counter-cyclical capital buffers could have been raised in these countries one year before the Lehman collapse. Notably, no warning signal would have been issued for Germany, which indeed did not experience a crisis afterwards.

CONCLUDING REMARKS

Policy-makers at the national authorities responsible for macro-prudential policies in the EU as well as at the European level, i.e. at the ECB and ESRB, will have to use their judgement in setting the macro-prudential policy stance for the respective countries. This special feature describes an early warning model that can be used to support policy decisions on whether to activate macro-prudential tools targeting excessive leverage. Based on the experience of EU countries over the last 40 years, decision trees can be effective at identifying excessive credit growth and leverage with a sufficient lead time to allow for policy reactions.

The analytical models presented can serve several purposes in the policy process. First, their good out-of-sample performance should help to overcome the possible inaction bias on the part of policy-makers. In case risks are emerging which have in the past led to systemic banking crises, the onus is on those who wish to rely on judgement alone to justify why macro-prudential policy tools are not activated. Second, the intuitive nature of a decision tree model and its easy visualisation is likely to increase acceptance of an analytical approach as a starting point for policy discussions. In particular, the tool can be used to trigger discussions on country specificities affecting the risk assessment. Third, a further advantage of such a model is that, depending on the characteristics of the leaf associated with a certain crisis probability, the nature of the vulnerability can also be identified, which in many cases would then suggest the use of one specific policy instrument over another.

11 See Alessi, L. and Detken, C., “Quasi real time early warning indicators for costly asset price boom/bust cycles: A role for global liquidity”, *European Journal of Political Economy*, 2011, and Sarlin, P., “On policymakers’ loss function and the evaluation of early warning systems”, *Economics Letters*, 2013.

C MICRO- VERSUS MACRO-PRUDENTIAL SUPERVISION: POTENTIAL DIFFERENCES, TENSIONS AND COMPLEMENTARITIES¹

This special feature discusses the potential differences, tensions and complementarities between micro- and macro-prudential policies. It argues (i) that in spite of the frictions that may arise between them, micro- and macro-prudential policies overall complement each other, and (ii) that the two policy domains play an equally important role in ensuring financial stability. To benefit most from their complementarities, it is essential that there is constructive cooperation and information sharing between micro- and macro-supervision.

INTRODUCTION

The Basel III accords have significantly changed prudential supervision, with a view to complementing micro-prudential supervision with a macro-prudential dimension designed to address systemic risk.²

This special feature discusses the inter-relations between micro- and macro-prudential supervision. Micro- and macro-prudential policies share a number of instruments, but have a different, albeit related, focus. The focus of micro-prudential policy is the stability of individual financial institutions. By contrast, the focus of macro-prudential policy is the stability of the financial system as a whole.

Complementarities between the two policy domains may arise primarily because they do not rely on exactly the same set of tools (e.g. counter-cyclical capital buffers are in the realm of macro-prudential supervision only). To give an example of complementarity: the counter-cyclical nature of some macro-prudential measures may have the unintended effect of leading banks to collectively take on risk ex ante. Micro-prudential measures may deter such collective behaviour by preventing excessive risk-taking at the level of individual banks.

Tensions may arise primarily because micro-prudential supervision does not necessarily internalise the potential adverse effects that it may have at the macroeconomic scale. Frictions between micro- and macro-prudential policies are most likely to emerge during downturns.

DIFFERENCES BETWEEN MICRO- AND MACRO-PRUDENTIAL POLICIES

This section highlights that micro- and macro-prudential policies rely on similar instruments applied at the level of individual financial institutions and have a different, albeit related, focus.

Different focus

The main focus of micro-prudential supervision is to safeguard individual financial institutions from idiosyncratic risks and prevent them from taking too much risk. However, the recent financial crisis has shown that the stability of individual financial institutions alone is not enough to ensure the stability of the financial system as a whole. This is why policy-makers and academic circles alike have been

Micro- and macro-prudential policies share a number of instruments, but have a different, albeit related, focus

Complementarities

Potential tensions

Micro-prudential supervision focuses on safeguarding individual financial institutions from idiosyncratic risks

¹ Prepared by Frederic Boissay and Lorenzo Cappiello.

² This special feature refers to micro- and macro-prudential supervision, rather than to micro- and macro-prudential supervisory authorities. Indeed, in practice, micro-prudential supervisors may also take into consideration risks to financial stability as a whole, and macro-prudential supervisors may also be concerned with the soundness of individual financial institutions, in particular systemically important financial institutions. See, for example, Hansen, L.P., “Challenges in identifying and measuring systemic risk”, *NBER Working Papers*, No 18505, National Bureau of Economic Research, November 2012.

developing a complementary *macro*-prudential approach to financial supervision.³ Macro-prudential supervision takes into account the interactions among individual financial institutions, as well as the feedback loops of the financial sector with the real economy, including the costs that systemic risk entails in terms of output losses. More often than not, such risk is generated endogenously during expansionary phases of the credit and business cycles. In those times, financial institutions’ perceptions of risk tend to recede, and financial institutions may not internalise the adverse externalities which their increased risk-taking behaviour may generate on the economy as a whole. By taking a general equilibrium perspective, macro-prudential supervision internalises those externalities.⁴ Moreover, macro-prudential policies have – by definition – a preventive role aimed at avoiding the excessive build-up of systemic risk over time, which in practice may also give these policies a macroeconomic stabilisation dimension. For example, it is likely that within their mandate, macro-prudential authorities will ease their policy stance during downturns and tighten it during upturns. In this sense, macro-prudential policies may also embed a counter-cyclical component.

Differences in the timing of policy interventions

Because micro- and macro-prudential supervision have a different focus, the timing of their policy interventions may differ over the credit or business cycles. Charts C.1 and C.2 illustrate this point. Chart C.1 shows the evolution of an indicator of bank default against the evolution of the outstanding amount of loans to non-financial corporations in the euro area and in the United States. During the credit boom that preceded the recent financial crisis, the one-year-ahead expected default frequency (in the euro area) and the number of bank defaults (in the United States) were negligible. This suggests that credit booms are not necessarily a source of concern for micro-prudential supervision, as banks, taken in isolation, look healthy during boom periods. When asset prices go up, indicators such as leverage ratios tend to decrease; also, market volatility is typically muted and risk tend to be under-priced. Even though vulnerabilities often reach their apex around peaks of the credit and business cycles, in those times the financial system seems stable – a phenomenon referred to as the “paradox of financial instability”.⁵ In these circumstances, it is likely that the risk assessment of a micro-prudential supervisor would be quite positive.

However, empirical evidence suggests that risks build up long before they materialise, i.e. during good times. Schularick and Taylor (2012), among others, argue that banking crises can be caused by the credit booms that precede them.⁶ One reason why credit booms may turn into banking crises is that, during those booms, credit grows in excess of what economic fundamentals justify. Excess credit may, for

3 See, for instance, Kashyap, A., Tsomocos, D. and Vardoulakis, A., “How does macro-prudential regulation change bank credit supply?”, *Working Paper Series*, The University of Chicago Booth School of Business, February 2014; Boissay, F., Collard, F. and Smets, F., “Booms and systemic banking crises”, *Working Paper Series*, No 1514, ECB, February 2013; Kashyap, A., Goodhart, C., Tsomocos, D. and Vardoulakis, A., “An integrated framework for analyzing multiple financial regulations”, *International Journal of Central Banking*, January 2013, pp. 109-143; Kashyap, A., Goodhart, C., Tsomocos, D. and Vardoulakis, A., “Financial regulation in general equilibrium”, *Working Paper Series*, The University of Chicago Booth School of Business, March 2012; Hanson, S., Kashyap, A. and Stein, J., “A macro-prudential approach to financial regulation”, *Journal of Economic Perspectives*, Vol. 25, No 1, 2011, pp. 3-28; Kashyap, A., Berner, R. and Goodhart, C., “The macro-prudential toolkit”, *IMF Economic Review*, Vol. 59, 2011, pp. 145-161; Shin, H., “Macro-prudential policies beyond Basel III”, Policy Memo, Princeton University, November 2010; Committee on the Global Financial System, “Macro-prudential instruments and frameworks: a stocktaking of issues and experiences”, *CGFS Papers*, No 38, Bank for International Settlements (BIS), May 2010; Committee on the Global Financial System, “Operationalising the selection and application of macro-prudential instruments”, *CGFS Papers*, No 48, BIS, December 2012; *Key aspects of macro-prudential policy*, International Monetary Fund (IMF), June 2013 and the companion background paper of the same date; *Flagship Report on macro-prudential policy in the banking sector*, European Systemic Risk Board (ESRB), March 2014.

4 There are many sorts of externalities. De Nicolò et al., for instance, classify the externalities that lead to systemic risk into three categories: those related to strategic complementarities, those related to fire sales, and those related to bank interconnectedness. De Nicolò, G., Favara, G. and Ratnovski, L., “Externalities and macro-prudential policy”, *IMF Staff Discussion Notes*, June, 2012.

5 Borio, C. and Drehmann, M., “Towards an operational framework for financial stability: “fuzzy” measurement and its consequences”, *Working Paper Series*, No 284, BIS, June 2009.

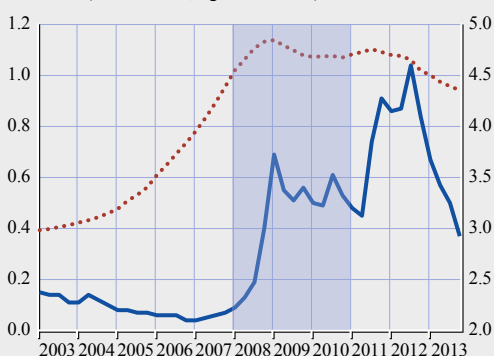
6 Schularick, M. and Taylor, A., “Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870-2008”, *American Economic Review*, Vol. 102, Issue 2, April 2012, pp. 1029-61.

Chart C.1 Bank defaults and loan developments in the euro area and the United States

(Q1 2003 – Q4 2013)

Euro area

- expected default frequency of banks (percentages; left-hand scale)
- loans to non-financial corporations (EUR trillions; right-hand scale)

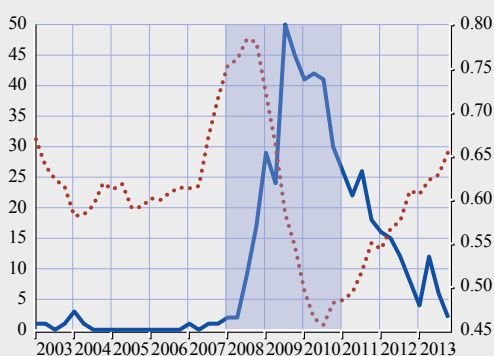


Sources: Moody's and ECB.

Note: The expected default frequency is measured at a one-year horizon.

United States

- number of bank failures (left-hand scale)
- loans to non-financial corporations (USD trillions; right-hand scale)



Sources: Federal Deposit Insurance Corporation and US flow of funds accounts.

Note: Non-financial corporate business; loans from depository institutions.

example, be due to banks taking on excessive risks. Keys et al. (2010), inter alia, show that US banks significantly relaxed their screening of borrowers between 2003 and 2007 because they could securitise their loans and shift the excess risk elsewhere in the financial system.⁷ At the time, banks did not internalise that, as they unravelled, those credit risks would harm the economy as a whole and have an impact on them by ricochet.

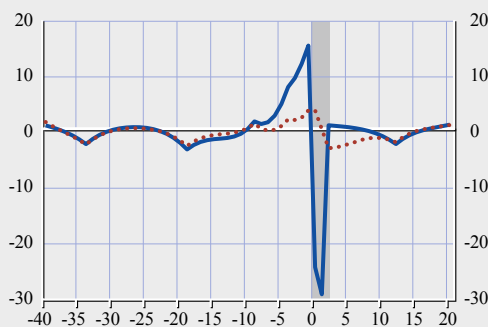
This analysis suggests that it is important that macro-prudential actions be taken in good time, i.e. already during booms. Chart C.2 reports the simulations of the credit cycle around a banking crisis in the Boissay-Collard-Smets (2013) model, where a crisis is defined as a sudden freeze of the wholesale financial market that is accompanied by a deep and long-lasting recession.⁸ In the chart, the blue line shows the evolution of credit in the absence of macro-prudential supervision. The resulting excessive credit growth is responsible for a crisis which breaks out in period 0. The dotted red line shows

Chart C.2 Externalities over the credit cycle

(percentages)

x-axis: periods around the crisis

- without macro-prudential regulation
- with macro-prudential regulation



Source: ECB.

Notes: Simulation of the credit (Hodrick-Prescott) cycle around the typical banking crisis (period 0) in the Boissay-Collard-Smets (2013) macro model. The blue line denotes the decentralised equilibrium allocation (without policy intervention) around banking crises (period 0). The dotted red line denotes the central planner allocation around the same dates. The difference between the two allocations reflects the role of externalities in the model. The underlying economic fundamentals are the same in the two cases.

It is important that macro-prudential actions be taken in a timely manner, i.e. already during booms

7 Keys, B., Mukherjee, T., Seru, A. and Vig, V., "Did securitisation lead to lax screening? Evidence from subprime loans", *Quarterly Journal of Economics*, Vol. 125, Issue 1, 2010, pp. 307-362.

8 Boissay, F., Collard, F. and Smets, F., op. cit.

the evolution of credit that would prevail if a supervisor addressed the negative externalities linked to this credit boom. In this case, macro-prudential policy could reduce the frequency or the depth of crises by curbing credit growth during the expansionary phase.

These differences in policy focus and timing imply that there are complementarities between the two policy domains, but also that tensions can arise.

COMPLEMENTARITIES BETWEEN MICRO- AND MACRO-PRUDENTIAL SUPERVISION

This section argues that complementarities exist between micro- and macro-prudential supervision and that the two policy domains play an equally important role in ensuring financial stability.

As mentioned above, complementarities may arise because the two policy domains have a different – albeit related – focus, and do not share exactly the same set of policy instruments. For example, unlike micro-prudential supervision, macro-prudential supervision can activate counter-cyclical capital buffers under the Basel III framework. Complementarities may also emerge because micro- and macro-supervision may not use their common instruments with the same degree of granularity. Overall, one can distinguish at least two levels of complementarity.

Macro-prudential policies are in some cases blunter than micro-prudential ones

First, macro-prudential policies are in some cases blunter than micro-prudential ones. For instance, if in bad times counter-cyclical macro-prudential policies are softened uniformly across all banks – as could be the case for counter-cyclical capital buffers – this may inadvertently keep unhealthy “zombie” banks alive. The congestion created by zombie banks may in turn reduce the profits for healthy banks, or generate counterparty fears that would discourage lending on the interbank market. Micro-prudential policies can address such undesired effects.

Macro-prudential policies may be vulnerable to “collective moral hazard” problems

Second, macro-prudential policies may be vulnerable to “collective moral hazard” problems.⁹ By their nature, some macro-prudential policies are counter-cyclical. A typical counter-cyclical macro-prudential instrument is the counter-cyclical capital buffer, which is commonly released during downturns. If banks anticipate that during periods of financial distress, policy actions aimed at relieving regulatory requirements will be implemented, then they may have ex ante incentives to *collectively* invest in risky, high-yield assets. At the same time, it is precisely because banks take on collective risks that macro-prudential supervision may be forced ex post to implement this counter-cyclical policy measure. Of course, macro-prudential supervision could anticipate such herd behaviour and further increase counter-cyclical capital buffers ex ante. Ultimately, though, taming collective moral hazard may require large and potentially inefficient fluctuations in counter-cyclical capital buffers. In this respect, micro-prudential supervision can help avoid an inefficient outcome by implementing ex ante tough measures on those tail banks that invest the most in risky assets. Since micro-prudential supervision can tighten requirements on banks according to their individual risk, it would be ill-advised for a bank in isolation to take on too much collective risk in the first place.

POTENTIAL TENSIONS BETWEEN MICRO- AND MACRO-PRUDENTIAL SUPERVISION

During upturns potential tensions between micro- and macro-supervision are relatively muted

During upturns of the credit and business cycles, potential tensions between micro- and macro-supervision are relatively muted. Even though vulnerabilities may reach very high levels around peaks of the cycle, in those times individual financial institutions look sound. Therefore, if for

9 Farhi, E. and Tirole, J., “Collective moral hazard, maturity mismatch and systemic bailouts”, *American Economic Review*, Vol. 102, Issue 1, February 2012, pp. 60-93.

instance, macro-supervision tightens its stance, e.g. by raising capital requirements uniformly across banks, this will be unlikely to lead to significant bank failures or be a source of tensions.¹⁰

During downturns, by contrast, diverging micro- and macro-prudential approaches could generate frictions.¹¹ This, in turn, could lead to inefficient outcomes, especially as micro-prudential policies may inadvertently cause negative externalities on the financial system as a whole. As shown in Chart C.1, in bad times, banks' capital buffers may fall, which makes failures more likely. To increase banks' resilience, micro-prudential supervision may require banks to hold higher levels of capital, so as to prevent counterparty runs, notably of institutional depositors.¹² Assume, for instance, that capital requirements are tightened, even for only a few but systemically important banks. This may induce those banks to deleverage by reducing their demand for assets or by shedding assets at fire sale prices, which in turn may entail capital erosions for other banks. An increase in capital requirements for some banks may also suffice to alter the banking sector's beliefs about the state of the economy and amplify the slump.¹³ Indeed, in an intriguing paper, Bebcuk and Goldstein (2011)¹⁴ show how banks' beliefs and coordination failure among them can generate an inefficient freeze in the retail corporate loan market. Market freezes occur in equilibrium as banks may rationally avoid lending to non-financial firms with worthy projects because of self-fulfilling expectations that other banks will also withhold loans.¹⁵ The macro-prudential approach is meant to take such externalities into consideration.

*During downturns
diverging micro- and
macro-prudential
approaches could
generate frictions*

CONCLUDING REMARKS

Micro- and macro-prudential supervision play an equally important role in ensuring financial stability and they complement each other. But in some cases tensions may arise between them. In order to fully exploit the complementarities between the two policy domains, minimise frictions and ensure an efficient use of policy instruments, it is essential that there is constructive cooperation and an adequate flow of information between micro- and macro-supervision. A sound and shared diagnosis of the factors determining a crisis could serve as a basis for such cooperation. While it is important that the two policy domains coordinate on a regular basis, the benefits may be the greatest during recessions when tensions between micro- and macro-prudential policies are likely to arise.

10 The counter-cyclical capital buffer extends the capital conservation buffer, and thus goes beyond the minimum capital requirements. If the counter-cyclical capital buffer is set between 0% and 2.5% of risk-weighted assets, mandatory reciprocity requirements apply. However, when justified by the underlying risk, the counter-cyclical capital buffer can be set above 2.5%, in which case recognition of the higher buffer rate by other designated authorities is voluntary. Banks are meant to build such a buffer in good times and draw it down in bad times.

11 Osiński, J., Seal, K. and Hoogduin, L., "Macroprudential and microprudential policies: towards cohabitation", *IMF Staff Discussion Notes*, June 2013.

12 Institutional depositor runs turned out to be an important factor in the recent financial crisis – see Shin, H., *Risk and Liquidity*, Clarendon Lectures in Finance, Chapter 8, Oxford University Press, 2010.

13 Whether or not an increase in capital requirements affects lending is debated. On the one hand, some studies argue that higher capital requirements have a limited impact on lending; see Elliott, D., "Quantifying the effects on lending of increased capital requirements," mimeo, The Brookings Institution, 2009; or Hanson, S., Kashyap, A. and Stein, J., "An analysis of the impact of 'substantially heightened' capital requirements on large financial institutions", mimeo, The University of Chicago Booth School of Business, 2010. On the other hand, some other studies argue that reducing capital requirements during a recession may be beneficial to lending; see Jiménez, G., Ongena, S., Peydro, J.-L. and Saurina, J., "Hazardous times for monetary policy: what do 23 million bank loans say about the effects of monetary policy on credit risk-taking?", *Econometrica*, Vol. 82, No. 2, March 2014, pp. 463-505.

14 See Bebcuk, L. and Goldstein, I., "Self-fulfilling credit market freezes", *Review of Financial Studies*, Vol. 24, No 11, 2011, pp. 3519-55.

15 The analysis of Bebcuk and Goldstein (2011) is based on the assumption that operating non-financial firms are interdependent, and that they benefit from the success of other firms, which in turn depends on their ability to obtain external finance. In such a world, the study distinguishes between three scenarios. In the first scenario, fundamentals are poor and banks rationally do not lend to non-financial firms, independently of their expectations regarding the lending attitude of other banks. In the second scenario, fundamentals are good and therefore banks find it worth lending, regardless of their expectations of what other banks do. Finally, there is a scenario in which fundamentals lie in an intermediate range and multiple equilibria can arise. It is in this situation that an efficient lending equilibrium or an inefficient credit freeze equilibrium can materialise.

In this respect, the recent arrangements in Europe go into the right direction. The Supervisory Board of the Single Supervisory Mechanism (SSM) has been established to plan and carry out the ECB's supervisory tasks, undertake preparatory work, and propose complete draft decisions for adoption by the ECB's Governing Council. Adequate cooperation between micro- and macro-prudential supervision will be ensured by the composition of the Supervisory Board, which includes a Chair, a Vice-Chair (a member of the ECB's Executive Board), four ECB representatives and one representative of the national competent authority of each participating Member State.¹⁶

¹⁶ Where the competent authority is not a national central bank (NCB), the members of the Supervisory Board may decide to bring in a representative from their respective NCB, but any one Member State will have only one vote in the Supervisory Board. See Special Feature A "Preparatory work for banking supervision at the ECB", *ECB Financial Stability Review*, November 2013.

D RISKS FROM EURO AREA BANKS' EMERGING MARKET EXPOSURES¹

In light of the recent emerging market tensions, this special feature takes stock of euro area banks' emerging market exposures by identifying the major sources and types of related risks and highlighting some of the potential financial channels of contagion. Euro area banks' emerging market exposures are analysed in time and cross-sectional dimensions, at the country and individual bank level, as well as in absolute terms and relative to some bank balance sheet metrics. Within a panel regression framework, the special feature also seeks to identify those emerging economies that – based on their credit metrics and fundamentals – are the most exposed to financial stability risks, which, if they materialise, may have negative repercussions for euro area banks with sizeable exposures to those economies.

INTRODUCTION

Several emerging market economies (EMEs) experienced intermittent bouts of volatility in 2013. In fact, the announcement of the US Federal Reserve's intention to taper its quantitative easing programme triggered a broad sell-off in emerging market assets back in mid-2013. This came at a time when credit was growing rapidly in many emerging economies and indeed still continues to do so in some of them. These tensions resurfaced at the beginning of 2014 after the Federal Reserve had begun tapering and the political tensions related to Ukraine and Russia unfolded (see Box 3). This more recent episode of emerging market tensions, however, was more closely linked to idiosyncratic domestic and external vulnerabilities. Ultimately, the sudden stop or, in some cases, reversal of capital flows from emerging markets prompted several emerging market central banks to intervene in foreign exchange markets and/or to raise benchmark interest rates to mitigate capital outflows and stabilise local money, bond and foreign exchange markets.

While these tensions have been specific to EMEs, they clearly have the potential to affect euro area banks through several channels. The direct exposures relate to the extent to which euro area institutions have operations in and/or exposures to emerging markets. While these direct exposures to emerging markets may foster geographic risk diversification and help weather weakness in domestic markets, they may in the event of emerging market tensions also have negative repercussions on the financial standing of euro area banks. Indirect channels could also be of importance, although the potential impact of these channels is difficult to gauge and doing so would require making many assumptions regarding the impact on global activity, alongside numerous trade and financial linkages. This special feature focuses on euro area banks' *direct* emerging market exposures in two key ways. First, bank exposures are examined in detail along time and cross-sectional dimensions, as well as at the country and individual bank level. Second, these exposures are examined with reference to major sources of emerging market risks – more specifically, which emerging economies are susceptible to heightened financial stability risks based on the current stage of their credit cycle.

EMERGING MARKET RISKS AND POSSIBLE DIRECT FINANCIAL TRANSMISSION CHANNELS TO EURO AREA BANKS

Amid accommodative monetary policies in advanced economies, investors' global search for yield has triggered strong capital flows to EMEs in recent years, contributing to credit in EMEs expanding at rates higher than nominal GDP growth, notably in Asia and Latin America. Managing

Emerging market tensions resurfaced in early 2014...

... not only entailing higher credit risk for banks...

¹ Prepared by John Beirne, Sándor Gardó and Piotr Zboromirski.

the gradual unwinding of the related financial imbalances poses a challenge to many EMEs, in particular to those in the late phase of the credit cycle. In fact, an abrupt ending and disorderly unwinding of the credit cycle in emerging economies may lead to – and has to some extent already led to – falling asset prices, sharp exchange rate corrections and capital outflows.

Depending on the size of euro area banks' emerging market exposures and their underlying business model (i.e. subsidiary versus branch-based, retail versus capital market-oriented, etc.), these emerging market tensions may translate into higher credit risk, which, if it materialises, may ultimately affect euro area banks' profitability, and potentially also solvency, via increased credit losses. In this context, a major concern relates to the economic environment, i.e. a pronounced slowdown in economic growth in emerging markets which may affect local borrowers' debt servicing capabilities and entail higher credit risks for banks. Moreover, against the backdrop of strong downward exchange rate pressures in several emerging economies, banks may also face heightened credit risk insofar as their exposures toward unhedged borrowers are denominated in foreign currencies. Furthermore, as central banks in EMEs have often raised key interest rates as a response to country-level tensions, interest rate risks may increase if loans are predominantly granted at variable interest rates.

... but possibly also weighing on bank profitability

The impact of these emerging market-related shocks on euro area banks' profitability will largely depend on the contribution of earnings from emerging market operations to the group's profits and on the profitability of both domestic and other markets' operations, as well as on how these operations are financed (locally or cross-border). Having said this, a hit to profitability may be reinforced by unfavourable exchange rate movements of emerging market currencies vis-à-vis the accounting currency at the consolidated group level, which may, however, also depend on the level of applied hedging policies. Obviously, adverse foreign exchange and interest rate movements also have marked negative implications for banks' emerging market exposures in the trading book, the analysis of which would, however, go beyond the scope of this special feature.

TAKING STOCK OF EURO AREA BANKS' EMERGING MARKET EXPOSURES

The analysis in this special feature is based on publicly available data from the Bank for International Settlements (BIS)² and the European Banking Authority (EBA). The first source is used to analyse exposures in the time dimension at the global, regional and country levels, while the data from the EBA's 2013 EU-wide Transparency Exercise³ are used to provide a cross-sectional snapshot of bank-level exposures at default as at June 2013.⁴ The following quantitative assessment of underlying emerging market vulnerabilities is based on International Monetary Fund (IMF) data on credit relative to GDP, GDP per capita, real interest rates and inflation.

2 Source data are provided in US dollars but have been transformed into euro at constant average Q4 2013 exchange rates. However, it should be noted that the US dollar appreciated vis-à-vis the euro by some 13% between the second quarter of 2008 and the fourth quarter of 2013. It should also be noted that the BIS data capture the consolidated claims of banks headquartered in BIS reporting countries, i.e. cross-border claims and the local claims of their foreign affiliates in both foreign and local currencies. Accordingly, the BIS data may tend to overstate banks' emerging market-related exposures and the potential risks stemming from emerging markets, especially those related to funding risk.

3 Data were reported to the EBA according to a minimum of (i) 90% of total exposure at default, and (ii) top ten countries in terms of exposure. Thus, a bank with 90% of its exposure concentrated in six countries had to submit data only for those six countries. By contrast, if the overall exposure of a bank towards the ten largest countries is below 90% of the total exposure, the bank had to provide data only for the ten largest countries. Accordingly, banks which have, for example, low exposures to EMEs relative to their own total exposure, but high EME exposures in absolute terms when compared to other individual banks, are not included in the analysis. In other words, the analysis mainly captures banks' whose business model is mainly tilted toward banking in EMEs. Also, banks only reported exposures in the banking book. Thus, the EBA data may understate banks' emerging market-related exposures.

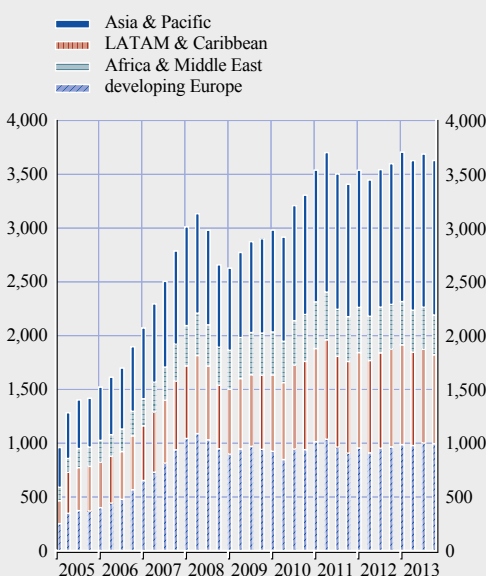
4 The terms exposure, foreign claims and exposures at default are used interchangeably depending on the data source analysed.

GLOBAL, REGIONAL AND COUNTRY DIMENSION

The consolidated BIS banking statistics suggest that the overall foreign claims of BIS reporting banks vis-à-vis the emerging market universe totalled about €3.6 trillion at year-end 2013 (see Chart D.1). The regional structure of foreign claims shows the increasingly prominent position of the “Asia & Pacific” region followed by “developing Europe”⁵, the Latin American and Caribbean countries (henceforth “LATAM & Caribbean”) as well as “Africa & Middle East”. In terms of the creditor structure, BIS reporting banks from the euro area⁶ accounted for some €1.6 trillion or 21% of their total foreign exposures at the end of 2013, or 45% of overall foreign claims vis-à-vis emerging markets, with UK, US and Japanese banks together accounting for a share of similar magnitude. In relative terms, however, the size of these emerging market exposures varies considerably, ranging from 37% of GDP in the United Kingdom to 17.5% of GDP in the euro area, and 9% and 4% in Japan and the United States respectively.

Chart D.1 Foreign claims of BIS reporting banks vis-à-vis emerging markets by region

(Q1 2005 – Q4 2013; EUR billions, consolidated; ultimate risk basis)



Sources: BIS consolidated banking statistics and ECB calculations.
Note: Developments over time may be distorted by exchange rate valuation effects.

Emerging market exposures of the euro area are sizeable in the global context...

In terms of evolution, overall foreign claims vis-à-vis emerging markets have roughly quadrupled since the beginning of 2005 and have remained fairly stable since early 2011. From the regional perspective, the BIS data show that foreign claims towards developing Europe have dropped somewhat since the beginning of the global crisis, reflecting the ongoing deleveraging of foreign parent banks from the euro area, in particular in central, eastern and south-eastern Europe (CESEE). By contrast, foreign claims vis-à-vis LATAM & Caribbean and Asia & Pacific have increased quite substantially over the last five years. This increase has been driven mainly by the – to some extent still ongoing – search for yield as a result of accommodative standard and non-standard monetary policies in major advanced economies, but also by the relatively favourable conjunctural developments in these emerging market regions compared with advanced economies. On aggregate, euro area banks' foreign claims vis-à-vis emerging markets have dropped since the beginning of the global crisis. This trend has been more than offset by the marked rise in exposures of UK, US and Japanese banks (see Chart D.2), indicating that banks from other major advanced economies have stepped in to fill the void left by deleveraging euro area banks.

... with some signs of deleveraging and cross-regional rebalancing

When looking at the structure of foreign claims by economic sector in the global context, the bulk of foreign claims is vis-à-vis the non-bank private sector, accounting for more than half of total emerging market exposures in all major emerging market regions. The share of claims vis-à-vis the public sector ranges from 20% in Asia & Pacific to 30% in LATAM & Caribbean, while the

Exposures to the non-financial private sector dominate in all emerging market regions

⁵ Based on the BIS classification, developing Europe comprises Bulgaria, Croatia, the Czech Republic, Hungary, Lithuania, Poland and Romania (all non-euro area EU Member States); Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey (all EU candidate and potential candidate countries); and Belarus, Moldova, Russia and Ukraine.

⁶ The BIS consolidated banking statistics comprise data for the following euro area economies: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain.

Developing Europe and Latin America stand out as the most important regions for euro area banks...

... while exposure concentration seems high at the country level in some cases

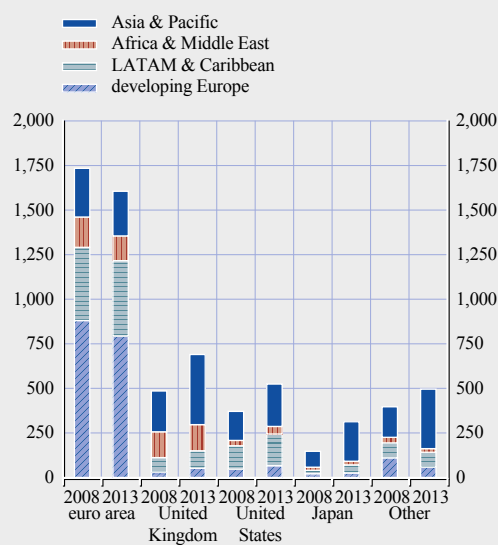
opposite holds for claims on banks, namely a range from some 13% in LATAM & Caribbean to 30% in Asia & Pacific. Notably, only in Asia & Pacific have claims on banks increased considerably since the onset of the global financial crisis. Regarding the type of claims, local claims of foreign offices are prominent in developing Europe and LATAM & Caribbean, where they account for roughly two-thirds of total emerging market exposures, while this share is much lower at some 50% in Asia & Pacific and Africa & Middle East. Conversely, cross-border claims are more relevant in the latter two regions, possibly indicating differences in banks' business strategies to enter respective emerging market regions.

A country-level view shows that around half of euro area banks' overall emerging market exposure was directed towards developing Europe, given both the economic importance and geographic proximity of the region. Within this region, the countries accounting for the largest exposures are Poland, the Czech Republic, Turkey and Russia. Euro area banks have reduced their exposures more or less sharply since the onset of the financial crisis in all emerging market regions except LATAM & Caribbean (see Chart D.3), which now accounts for 26% of total emerging market exposures of euro area banks. Spanish claims vis-à-vis LATAM & Caribbean represented some 85% of overall euro area claims on the region, with a strong focus on Brazil, Mexico and Chile. Exposures to the Asia & Pacific region (15% of the total), mainly China, India and South Korea, as well as to Africa & Middle East (9%), were somewhat less important on aggregate.

Spain had the highest level of foreign claims on emerging economies in absolute terms, corresponding to €412 billion, followed by France (€357 billion) and Germany (€209 billion) (see Chart D.4). However, it is important to note that these claims also include local claims of foreign affiliates which are often to a large extent domestically funded, in particular in the case of Spain, and may thus be less risky than direct cross-border claims owing to potentially lower funding and rollover risks. Relative to the size of the economy, Austrian banks' emerging market exposure was the highest across the euro area, accounting for some 57% of GDP, but Spanish (41%), Greek (34%), Dutch (23%) and Portuguese (19%) banks' foreign claims on emerging markets were sizeable as well. Looking at country-level developments over time, Spain, France, Italy and Greece all saw absolute increases in emerging market exposures since mid-2008, mainly to LATAM & Caribbean and developing Europe, while at the same time, German, Dutch and Belgian banks have deleveraged strongly, in particular in developing Europe. Finally, the strong regional concentration of Spanish, Austrian and Italian banks' emerging market exposures on either LATAM & Caribbean or developing Europe is noteworthy, while French, German and Dutch banks' emerging market exposures seem more broadly diversified.

Chart D.2 Foreign claims of BIS reporting banks vis-à-vis emerging market regions by origin

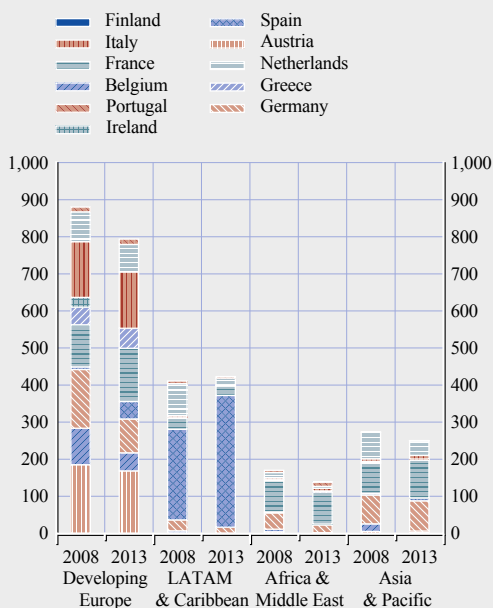
(Q2 2008; Q4 2013; EUR billions, consolidated; ultimate risk basis)



Sources: BIS consolidated banking statistics and ECB calculations.
Note: Developments over time may be distorted by underlying exchange rate valuation effects.

Chart D.3 Foreign claims vis-à-vis emerging market regions by country of origin

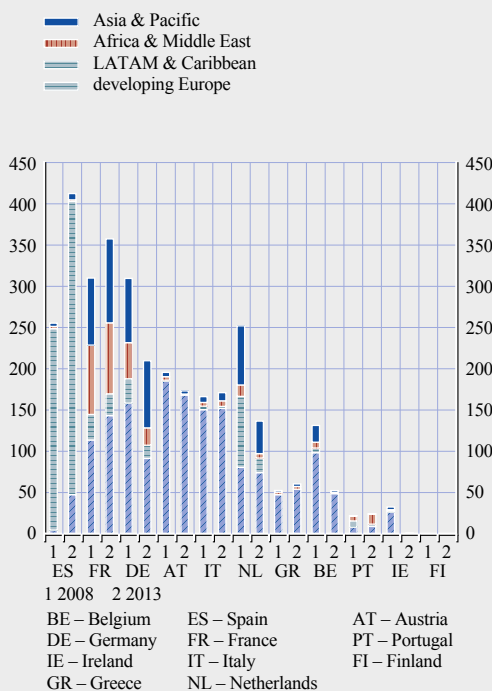
(Q2 2008; Q4 2013; EUR billions, consolidated; ultimate risk basis)



Sources: BIS consolidated banking statistics and ECB calculations.
Note: Developments over time may be distorted by underlying exchange rate valuation effects.

Chart D.4 Foreign claims of BIS reporting euro area countries vis-à-vis emerging markets

(Q2 2008; Q4 2013; EUR billions, consolidated; ultimate risk basis)



Sources: BIS consolidated banking statistics and ECB calculations.
Notes: Developments over time may be distorted by underlying exchange rate valuation effects.

INDIVIDUAL BANK DIMENSION

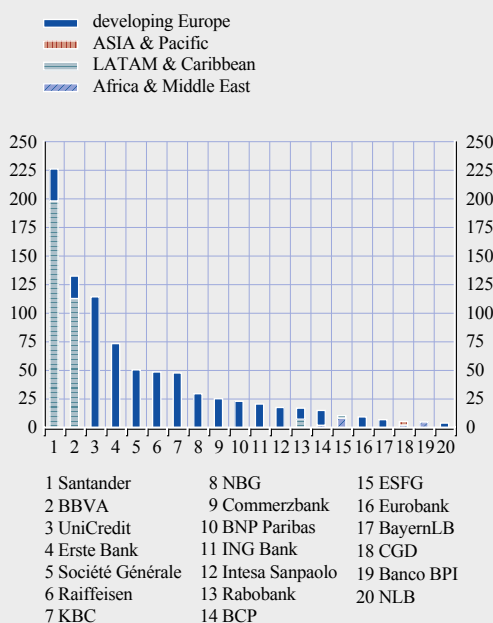
Turning to individual euro area banks' emerging market exposures, as based on the EBA's 2013 Transparency Exercise, Santander, BBVA and UniCredit appear to have the largest emerging market exposures in nominal terms. Less surprisingly, the two largest Spanish banks are strongly exposed to the LATAM & Caribbean region, but have non-negligible exposures to developing Europe, especially Santander (see Chart D.5) following some major acquisitions in Poland in 2011 and 2012. Most other euro area banks are predominantly exposed towards developing Europe, where also French banks have increased their presence. However, Portuguese banks seem to have meaningful exposures to Africa & Middle East as well.

Moreover, bank-level data indicate a fairly balanced exposure structure towards different sectors of the economy. Accordingly, the retail and corporate sectors each account for roughly one-third in total emerging market exposures at default, compared with a 25% share of the public sector. The relatively small exposures towards institutions may be due to both the lack of data on trading book exposures and less developed local interbank markets in emerging economies. Nevertheless, some institution-specific differences seem to prevail as, for example, UniCredit and Raiffeisen tend to have larger corporate exposures, while KBC seems more exposed to the public sector (see Chart D.6).

Bank-level exposures are often considerable in nominal terms...

Chart D.5 Selected euro area banking groups' emerging market exposures at default by emerging market region

(June 2013; EUR billions)

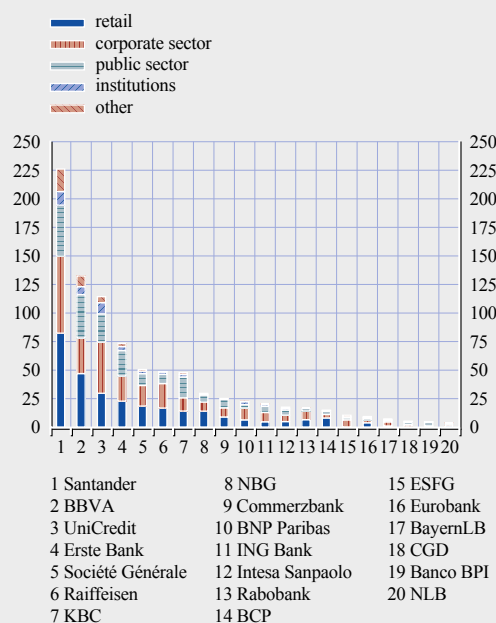


Sources: EBA's 2013 transparency exercise and ECB calculations.

Notes: Data were reported to the EBA according to a minimum of (i) 90% of total exposure at default, and (ii) top ten countries in terms of exposure. Accordingly, banks which have, for example, low exposures to EMEs relative to their own total exposure, but high EME exposures in absolute terms when compared to other individual banks, are not included in the analysis. In other words, the analysis mainly captures banks' whose business model is tilted towards banking in EMEs.

Chart D.6 Selected euro area banking groups' emerging market exposures at default by economic sector

(June 2013; EUR billions)



Sources: EBA's 2013 transparency exercise and ECB calculations.

Notes: Institutions refers to financial institutions and public entities not classified as central government. Data were reported to the EBA according to a minimum of (i) 90% of total exposure at default, and (ii) top ten countries in terms of exposure. Accordingly, banks which have, for example, low exposures to EMEs relative to their own total exposure, but high EME exposures in absolute terms when compared to other individual banks, are not included in the analysis. In other words, the analysis mainly captures banks' whose business model is tilted towards banking in EMEs.

... but also relative to banks' total exposures at default or capital

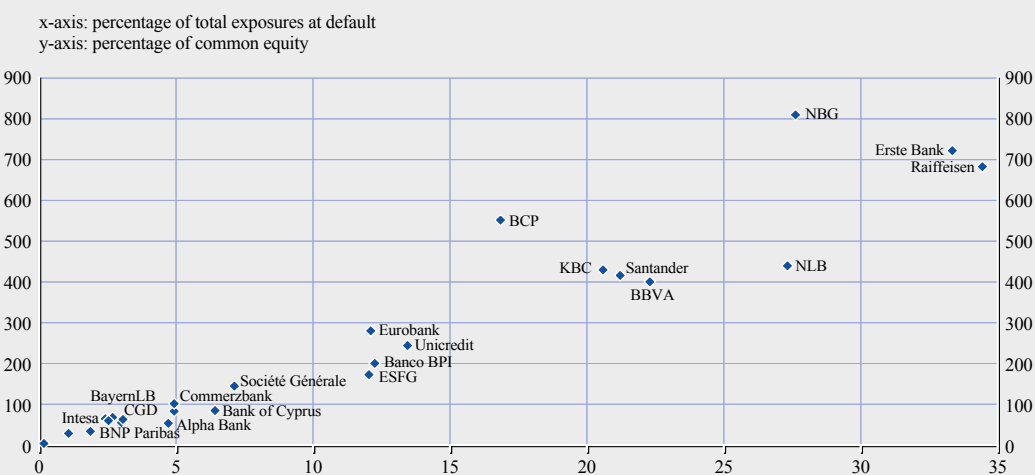
Euro area banks' emerging market exposures exceed 10% of their total exposures at default in the case of 12 euro area banking groups, with Austria's Raiffeisen and Erste Bank, Greece's National Bank of Greece (NBG) and Slovenia's Nova Ljubljanska banka taking the lead in this regard. Also relative to bank capital, i.e. banks' common equity as reported in the EBA's transparency exercise, NBG, Erste Bank and Raiffeisen are highlighted as the most exposed towards emerging markets (see Chart D.7).

Lower income from emerging market operations may pose a risk to euro area banks' profits

The relevance of emerging market operations is also reflected by the share of emerging market-related income in euro area banking groups' total consolidated profit. Available data suggest that profits from emerging market operations constitute a high share of total profit in the case of several euro area banking groups. This confirms a higher historic return on equity from emerging market operations, but also highlights the potential risks related to a major macroeconomic slowdown or financial market turmoil in emerging markets. From the regional perspective, income mainly came from operations in LATAM & Caribbean and developing Europe, with the exception of a few western Balkan countries and Hungary, which have contributed negatively to some euro area banks' consolidated income.

Chart D.7 Selected euro area banking groups' emerging market exposures at default relative to banks' common equity and total exposures at default

(June 2013; percentages)



Sources: EBA's 2013 transparency exercise and ECB calculations.

ASSESSING THE MACRO-FINANCIAL VULNERABILITY OF EMERGING ECONOMIES WITH HIGH EURO AREA BANK EXPOSURES

In recent years, developments in several emerging economies have been characterised by rapid credit growth that could lead to heightened financial stability risks (see Chart D.8), particularly in those economies which are deemed to have an “excessive” level of credit relative to GDP. To evaluate the associated possible country-level risks for euro area banks, the signs of potential “excessive” credit growth in EMEs are assessed with the main aim of identifying the most vulnerable emerging economies among those to which euro area banks' have the largest exposures. The top ten emerging economies in terms of nominal exposure size identified in the two databases used to analyse euro area banks' exposures are Poland, Brazil, the Czech Republic, Mexico, Turkey, Russia, China, Romania, Chile and Hungary.

One means by which to assess whether credit is “excessive” is to examine the credit-to-GDP gap, which can be defined as the gap between the credit-to-GDP ratio and its fundamental level. Using a panel model over the period 2001-13 for 20 EMEs, including the ten emerging economies to which euro area banks are the most exposed, the level of credit relative to GDP that is consistent with broader macroeconomic fundamentals can be estimated. After regressing the credit-to-GDP ratio on a range of macroeconomic fundamentals, an “excessive” level is calculated as the difference between the actual level and the fundamental level implied by the model.⁷ The regional results indicate that the level of credit relative to GDP across all major EME regions has been – to a more or less larger degree – in excess of that implied by fundamentals in recent years (see Chart D.9).

⁷ The approach taken in this special feature uses the following equation: $c_{it} = \alpha_0 + \alpha_1 + \beta_1 X_{it} + e_{it}$, where c_{it} is the credit-to-GDP ratio, α_i are country-specific fixed effects (deviations from common intercepts), and X_{it} represents a set of macroeconomic fundamentals comprising GDP per capita, real short-term interest rates and inflation. The elasticities estimated are applied to calculate the credit-to-GDP gap. This approach allows for going beyond the commonly used filtering approaches. The equation specification used is based on that applied in Beirne, J. and Fratzscher, M., “The pricing of sovereign risk and contagion during the European sovereign debt crisis”, *Journal of International Money and Finance*, Vol. 34, Issue C, 2013, pp. 60-82. While the approach used in that paper allows for assessing excessive credit spread levels, it can equally be applied for the assessment of excessive credit-to-GDP levels. The macroeconomic fundamentals in the vector X are common to the literature on credit growth. Moreover, country-specific fixed effects in the model help to account for prospective heterogeneity across the EMEs in the panel, e.g. differences in financial deepening starting points.

Credit growth higher than GDP growth in many emerging economies...

Chart D.8 Gap between nominal GDP growth and credit growth

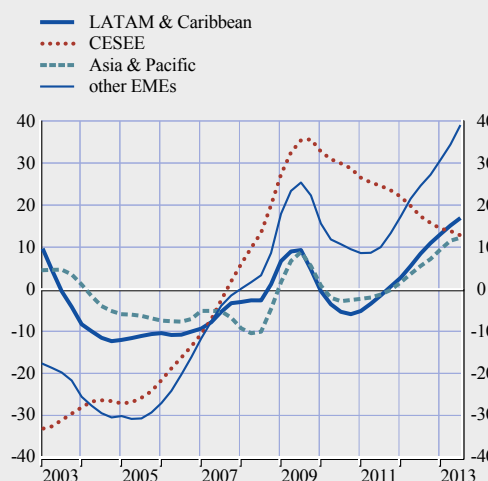
(Jan. 2003 – Nov. 2013; percentage points; three-month moving averages)



Sources: IMF, ECB and ECB calculations.

Chart D.9 Gap between the actual credit-to-GDP ratio and its fundamentals-based level

(Q1 2003 – Q3 2013; percentage points; four-quarter moving averages)



Sources: IMF, ECB and ECB calculations.

Notes: The chart shows the difference between the actual credit-to-GDP ratio and the level implied by macroeconomic fundamentals. LATAM refers to Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. CESEE refers to the Czech Republic, Hungary, Poland and Romania. Asia refers to China, India, Indonesia, Malaysia, the Philippines and South Korea, while other EMEs refers to Russia, Turkey and South Africa.

This is in line with the observed rapid growth of capital and financial inflows into the emerging markets, stimulating credit growth and further economic expansion.⁸

... highlighting vulnerabilities in several countries

A closer look at the results indicates that in all major emerging market regions the level of credit relative to GDP is above the level of what fundamentals would suggest and is in some cases even still rising. The credit cycle in Latin America is still on the upward swing, with the actual level of credit relative to GDP substantially above its fundamental level in the case of Brazil, Chile, Colombia and Peru. The same is also true for Asia, where the level of credit relative to GDP is much higher than its fundamental level mainly in India, Indonesia and Malaysia, but also in other emerging economies, most notably Turkey and Russia (see Table D.1). In the case of the CESEE region, the evidence suggests that the credit-to-GDP gap has fallen since mid-2009. This trend is indicative of foreign (parent) bank deleveraging that has been observed in a number of countries since the onset of the global crisis. Indeed, foreign banks have become more selective in terms of their country-level activities and have reshaped their CESEE activities towards a more domestically-funded business model. This said, foreign bank deleveraging in the CESEE region has remained contained and gradual, not least helped by the European Bank Coordination “Vienna” Initiative which aimed to avoid an abrupt and large-scale deleveraging by foreign banks.

⁸ While the results are conditional on the methodology implemented, it is worth noting that these findings are broadly in line with the assessments in the IMF’s April 2014 World Economic Outlook (WEO), even though it is difficult to make direct comparisons given differences in time periods and the methodologies applied. While the IMF’s WEO bases its assessment of excessive credit on differences relative to a long-run trend, the methodology applied here addresses the common criticism of that approach, namely that it does not take into account the role of macroeconomic fundamentals. The findings are also in line with recent analytical work by the IMF on Latin America, for example Hansen, N.-J.H. and Sulla, O., “Credit growth in Latin America: financial development or credit boom?”, *Working Paper Series*, No 13/106, IMF, May 2013.

Table D.1 Heat map on deviations from fundamental level of credit relative to GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Exposures
CESEE														607
Poland														195
Czech Republic														136
Romania														59
Hungary														53
LATAM & Caribbean														423
Brazil														156
Mexico														125
Chile														54
Venezuela														24
Peru														17
Argentina														16
Colombia														14
Other EMEs														326
Turkey														100
Russia														86
South Africa														3
Asia & Pacific														250
China														92
India														39
South Korea														35
Indonesia														5
Malaysia														4
Philippines														3

Sources: IMF, ECB and ECB calculations.

Notes: Green means that the level of credit relative to GDP is below the fundamental level; yellow means that the level of credit relative to GDP is up to 10 percentage points above the fundamental level; orange up to 20 percentage points above; and red 20 percentage points or higher. Figures in the last column indicate the level of euro area bank exposures in individual emerging economies in EUR billions as at year-end 2013. Individual country figures may not add up to regional aggregates as the model only covers selected emerging economies. Also, individual country-level exposures may be higher than indicated in the table given the BIS methodology of reporting country-level exposures. CESEE refers to developing Europe as defined by the BIS excluding Russia and Turkey. Other EMEs refers to Africa & Middle East as defined by the BIS plus Russia and Turkey.

CONCLUDING REMARKS

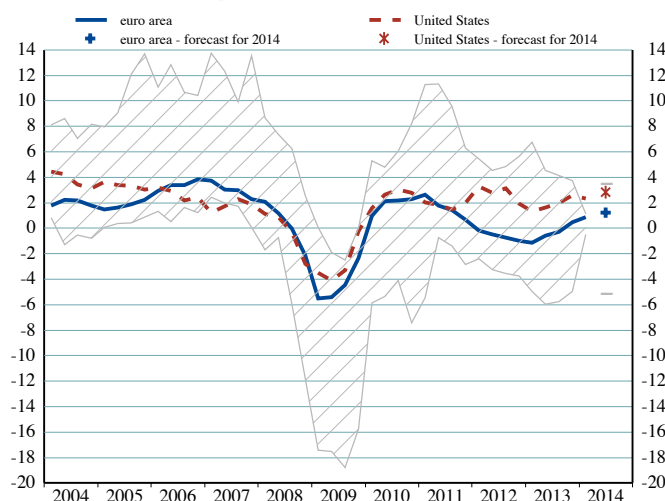
This special feature identified the scale of euro area banking sector exposures towards emerging markets and assessed the potential macro-financial risks in those emerging markets harbouring the highest direct euro area bank exposures. Euro area banks account for almost 45% of global exposures to emerging markets, although this corresponds to only 21% of their total foreign exposures. Amid a general trend of deleveraging of euro area banks in emerging markets since the onset of the global crisis, there are also some signs of a mild inter-regional rebalancing, as reflected in slightly higher exposure volumes in LATAM & Caribbean and the decreasing but significant exposures to developing Europe. In fact, the bulk of euro area banks' emerging market exposures is evident with regard to developing Europe and LATAM & Caribbean, suggesting the strong relative importance of these two regions for euro area banks in terms of financial stability risks stemming from emerging market operations. From a country-level perspective, the euro area countries most exposed to emerging markets are Austria, Spain, Greece, the Netherlands, Portugal and France (in relative terms). According to the methodology used, the emerging economies with the highest underlying macro-financial risks are to be found predominantly in LATAM & Caribbean and Asia & Pacific, but also in Russia and Turkey. Euro area banks with exposures in these EME regions are therefore more vulnerable from a financial stability perspective than those with exposures in other EME regions, underlining the importance for these banks in particular to have sufficient capital buffers in place.

STATISTICAL ANNEX

I. MACRO-FINANCIAL AND CREDIT ENVIRONMENT

S.1.1 Actual and forecast real GDP growth

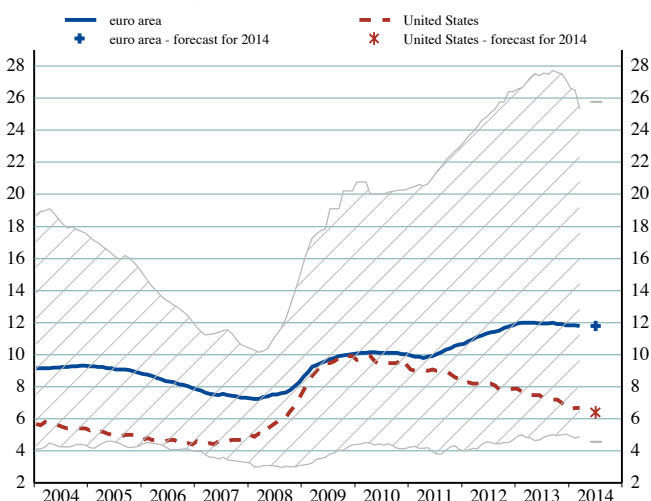
(Q1 2004 - Q1 2014; annual percentage changes)



Sources: Eurostat and European Commission (AMECO, Spring 2014 forecast).
Note: The hatched area indicates the minimum-maximum range across euro area countries.

S.1.2 Actual and forecast unemployment rates

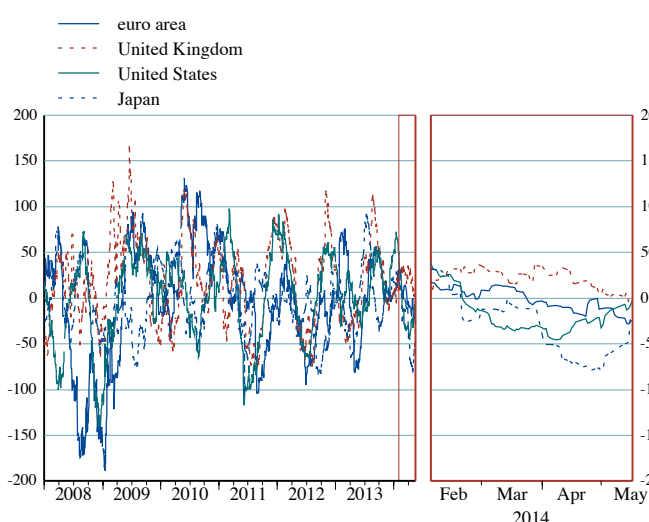
(Jan. 2004 - Mar. 2014; percentage of the labour force)



Sources: Eurostat and European Commission (AMECO, Spring 2014 forecast).
Note: The hatched area indicates the minimum-maximum range across euro area countries.

S.1.3 Citigroup Economic Surprise Index

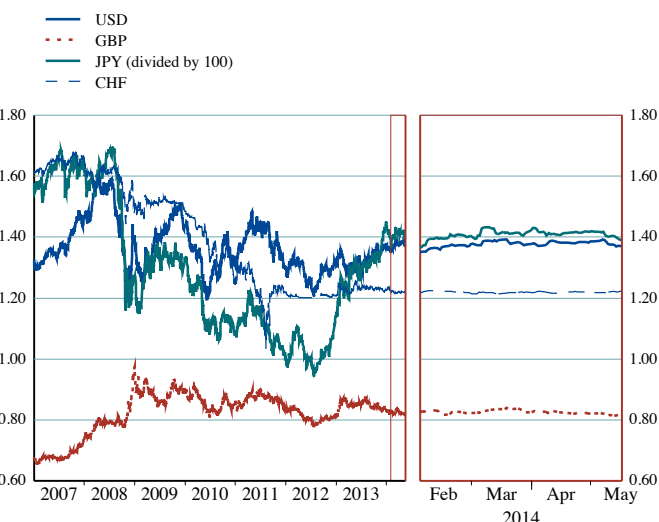
(1 Jan. 2008 - 16 May 2014)



Source: Bloomberg.
Note: A positive reading of the index suggests that economic releases have, on balance, been more positive than consensus expectations.

S.1.4 Exchange rates

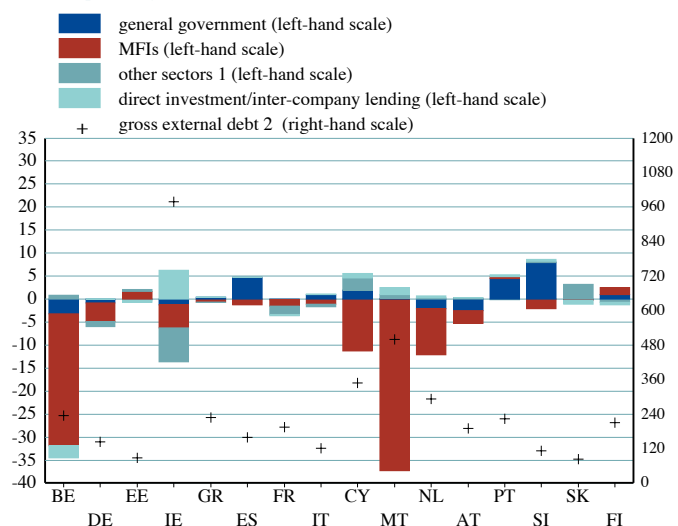
(1 Jan. 2007 - 16 May 2014; units of national currency per euro)



Sources: Bloomberg and ECB calculations.

S.1.5 Quarterly changes in gross external debt

(2013 Q4; percentage of GDP)



Source: ECB.

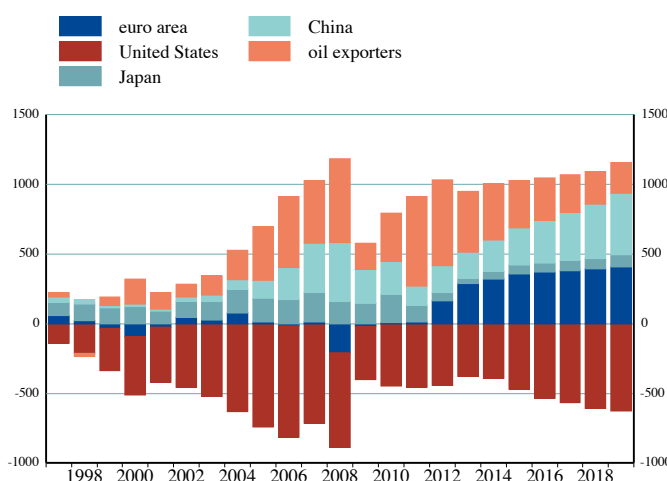
Notes: For Luxembourg, quarterly changes were -2.1% for general government, -46.9% for MFIs, 20.2% for other sectors and -49.7% for direct investment/inter-company lending. Gross external debt was 5,415% of GDP.

1) Non-MFIs, non-financial corporations and households.

2) Gross external debt as a percentage of GDP.

S.1.6 Current account balances in selected external surplus and deficit economies

(1997 - 2019; USD billions)



Source: IMF World Economic Outlook.

Notes: Oil exporters refers to the OPEC countries, Indonesia, Norway and Russia. Figures for 2014 to 2019 are forecasts.

S.1.7 Current account balances (in absolute amounts) in selected external surplus and deficit economies

(1997 - 2019; percentage of world GDP)

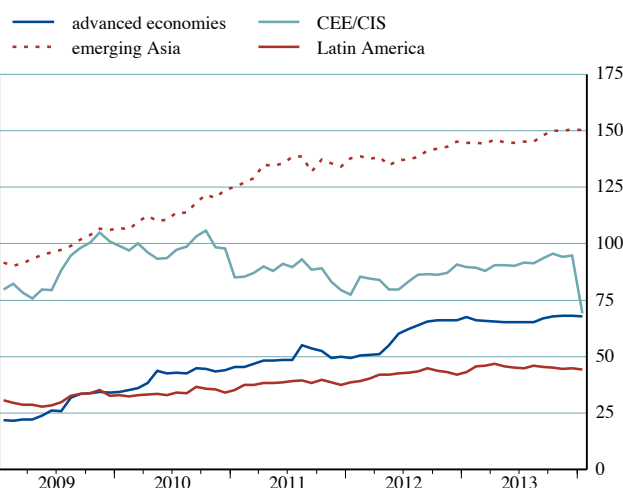


Source: IMF World Economic Outlook.

Notes: All large surplus/deficit economies refers to oil exporters, the EU countries, the United States, China and Japan. Figures for 2014 to 2019 are forecasts.

S.1.8 Foreign exchange reserve holdings

(Jan. 2009 - Jan. 2014; percentage of 2009 GDP)

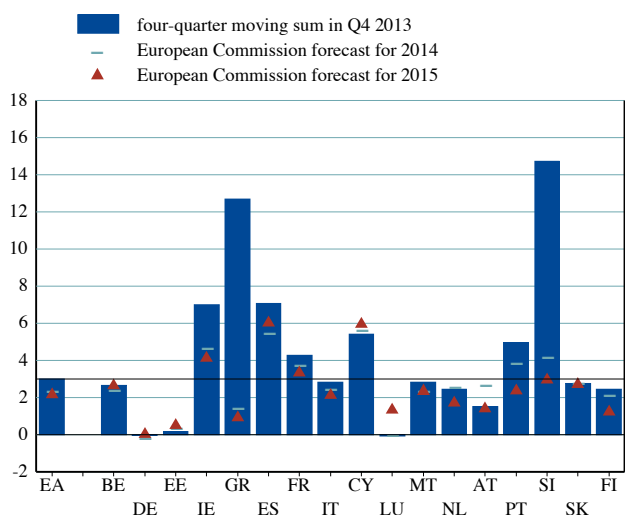


Sources: Bloomberg, IMF World Economic Outlook and IMF International Financial Statistics.

Note: CEE/CIS stands for central and eastern Europe and the Commonwealth of Independent States.

S.1.9 General government deficit/surplus (+/-)

(percentage of GDP)

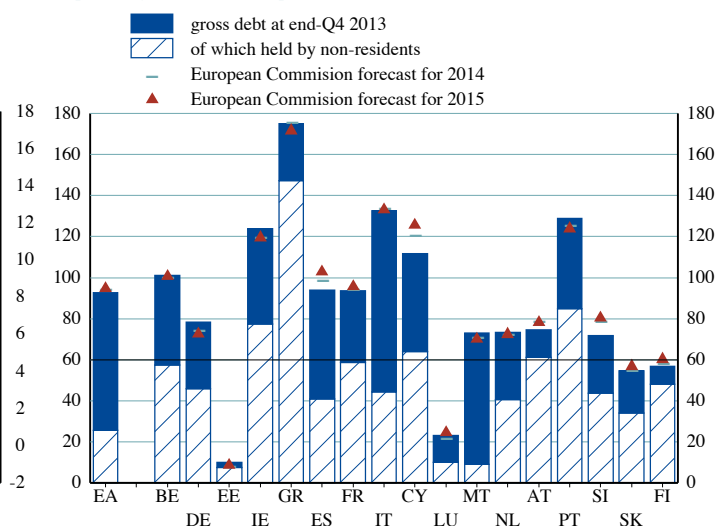


Sources: National data, European Commission (AMECO, Spring 2014 forecast) and ECB calculations.

Notes: Data on four quarter moving sum refer to accumulated deficit/surplus in the relevant quarter and the three previous quarters expressed as a percentage of GDP.

S.1.10 General government gross debt

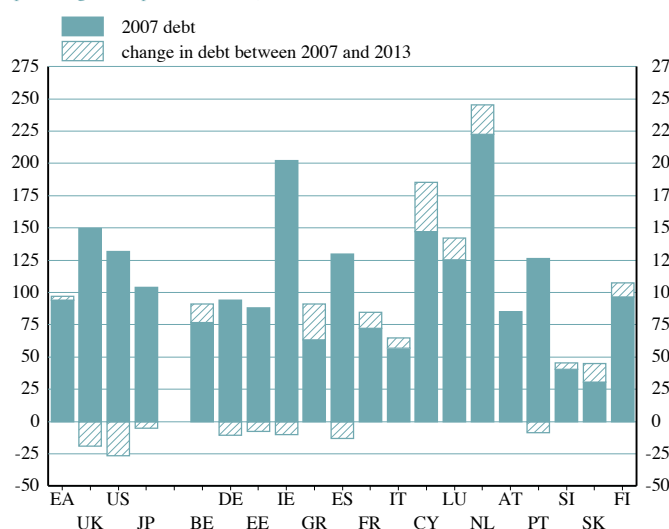
(percentage of GDP, end of period)



Sources: National data, European Commission (AMECO, Spring 2014 forecast) and ECB calculations.

S.1.11 Household debt-to-gross disposable income ratio

(percentage of disposable income)

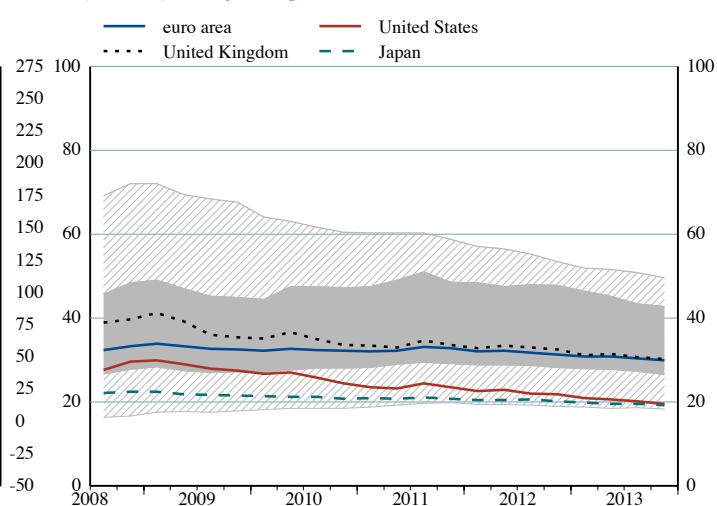


Sources: ECB, Eurostat, US Bureau of Economic Analysis and Bank of Japan.

Notes: Gross disposable income adjusted for the change in net equity of households in pension fund reserves. For Luxembourg initial debt data refer to 2008, change in debt refers to 2008 and 2012. For Japan, Estonia, Greece, Cyprus and Slovakia change in debt refers to 2007 and 2012. Data for Malta are not available.

S.1.12 Household debt-to-total financial assets ratio

(Q3 2008 - Q4 2013; percentages)

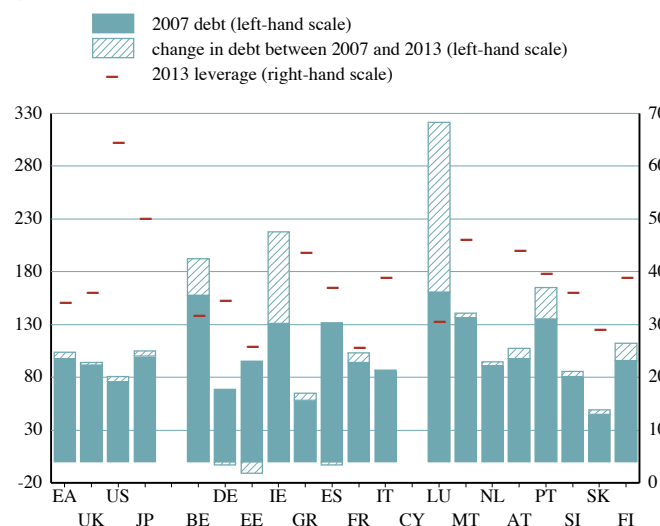


Sources: ECB and ECB calculations, Eurostat, US Bureau of Economic Analysis and Bank of Japan.

Note: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across euro area countries.

S.1.13 Corporate debt-to-GDP and leverage ratios

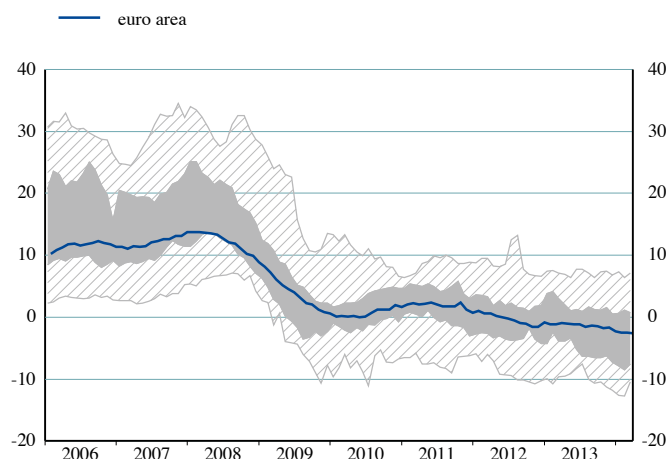
(percentages)



Sources: ECB, Eurostat, US Bureau of Economic Analysis and Bank of Japan.
Note: Corporate debt-to-GDP data for Cyprus and leverage data for Cyprus, Ireland and the Netherlands are not available for publication owing to national confidentiality constraints.

S.1.14 Annual growth of MFI credit to the private sector in the euro area

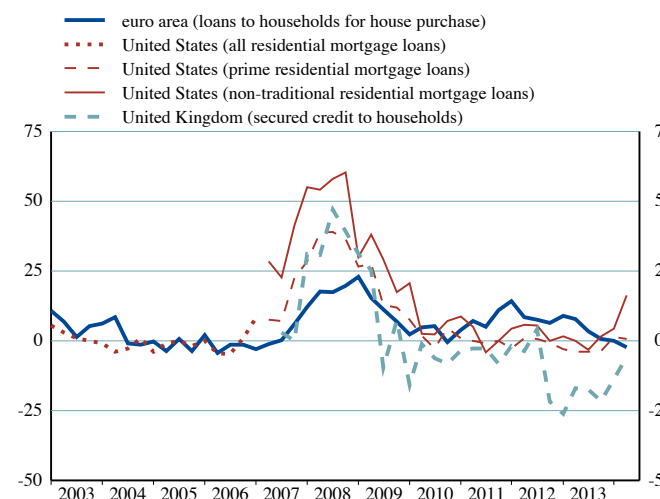
(Jan. 2006 - Mar. 2014; percentage change per annum)



Sources: ECB and ECB calculations.
Notes: MFI sector excluding the Eurosystem. Credit to the private sector includes loans to, and holdings of securities other than shares of, non-MFI residents excluding general government; MFI holdings of shares, which are part of the definition of credit used for monetary analysis purposes, are excluded. The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across euro area countries.

S.1.15 Changes in credit standards for residential mortgage loans

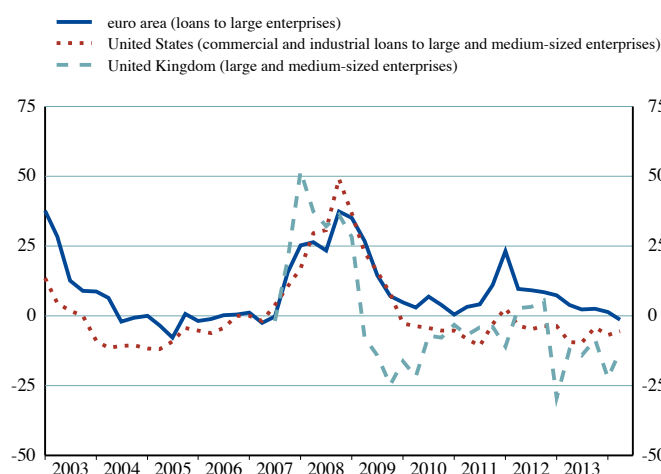
(Q1 2003 - Q2 2014; percentages)



Sources: ECB, Federal Reserve System and Bank of England.
Notes: Weighted net percentage of banks contributing to the tightening of standards over the past three months. Data for the United Kingdom refer to the net percentage balances on secured credit availability to households and are weighted according to the market share of the participating lenders. Data are only available from the second quarter of 2007 and have been inverted for the purpose of this chart. For the United States, the data series for all residential mortgage loans was discontinued owing to a split into the prime, non-traditional and sub-prime market segments from the April 2007 survey onwards.

S.1.16 Changes in credit standards for loans to large enterprises

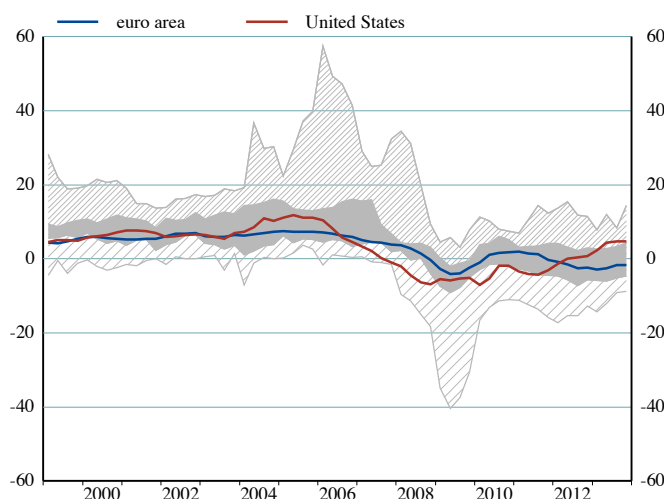
(Q1 2003 - Q2 2014; percentages)



Sources: ECB, Federal Reserve System and Bank of England.
Notes: Weighted net percentage of banks contributing to the tightening of standards over the past three months. Data for the United Kingdom refer to the net percentage balances on corporate credit availability and are weighted according to the market share of the participating lenders. Data are only available from the second quarter of 2007 and have been inverted for the purpose of this chart.

S.I.17 Changes in residential property prices

(Q1 1999 - Q4 2013; annual percentage changes)

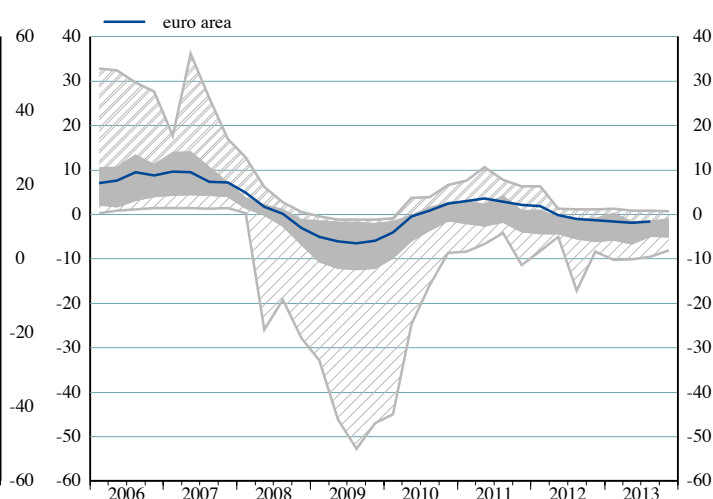


Sources: National data and ECB calculations.

Notes: The target definition for residential property prices is total dwellings (whole country), but there are national differences. The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across euro area countries.

S.I.18 Changes in commercial property prices

(Q1 2006 - Q4 2013; capital value; annual percentage changes)



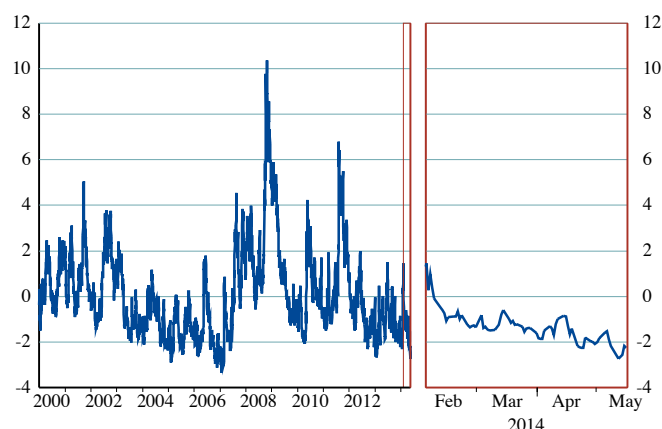
Sources: experimental ECB estimates based on IPD data and national data for Germany and Italy.

Note: The hatched/shaded areas indicate the max.-min./interquartile range across EA countries, except DE, EE, GR, CY, LV, LU, MT, SI, SK and FI.

2 FINANCIAL MARKETS

S.2.1 Global risk aversion indicator

(3 Jan. 2000 - 16 May 2014)

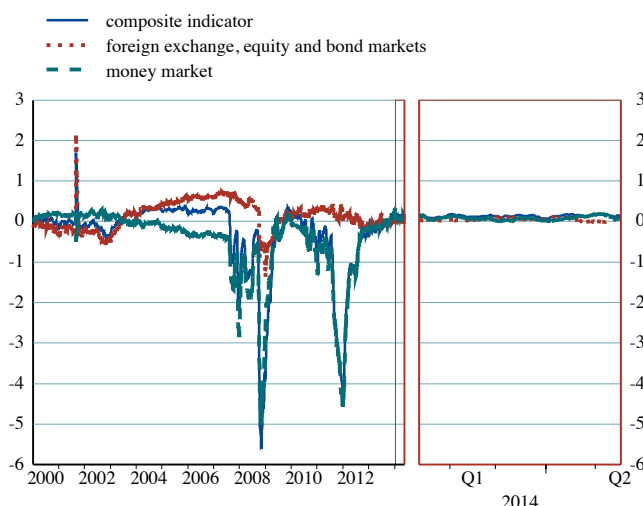


Sources: Bloomberg, Bank of America Merrill Lynch, UBS, Commerzbank and ECB calculations.

Notes: The indicator is constructed as the first principal component of five currently available risk aversion indicators. A rise in the indicator denotes an increase of risk aversion. For further details about the methodology used, see ECB, "Measuring investors' risk appetite", *Financial Stability Review*, June 2007.

S.2.2 Financial market liquidity indicator for the euro area and its components

(4 Jan. 1999 - 16 May 2014)

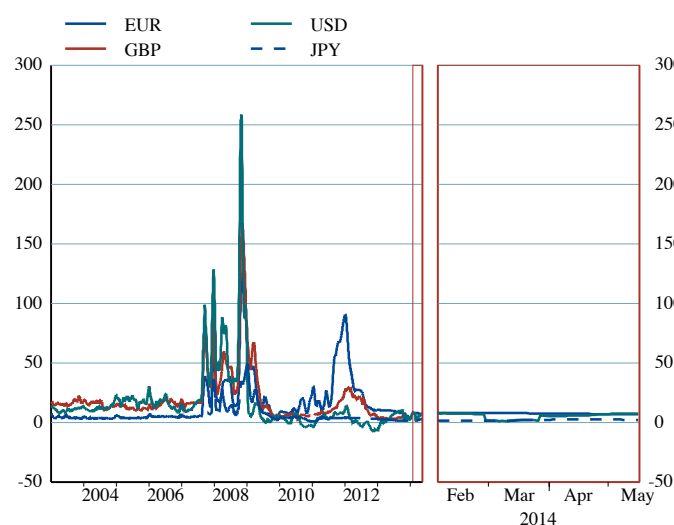


Sources: ECB, Bank of England, Bloomberg, JPMorgan Chase & Co., Moody's KMV and ECB calculations.

Notes: The composite indicator comprises unweighted averages of individual liquidity measures, normalised from 1999 to 2006 for non-money market components and over the period 2000 to 2006 for money market components. The data shown have been exponentially smoothed. For more details, see Box 9 in ECB, *Financial Stability Review*, June 2007.

S.2.3 Spreads between interbank rates and repo rates

(3 Jan. 2003 - 16 May 2014; basis points; 1-month maturity; 20-day moving average)

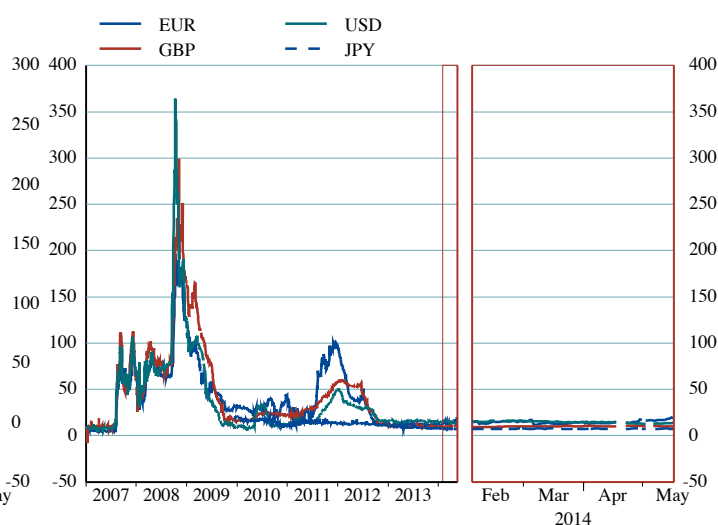


Sources: Thomson Reuters, Bloomberg and ECB calculations.

Notes: Due to the lack of contributors, the series for GBP stopped in October 2013.

S.2.4 Spreads between interbank rates and overnight indexed swap rates

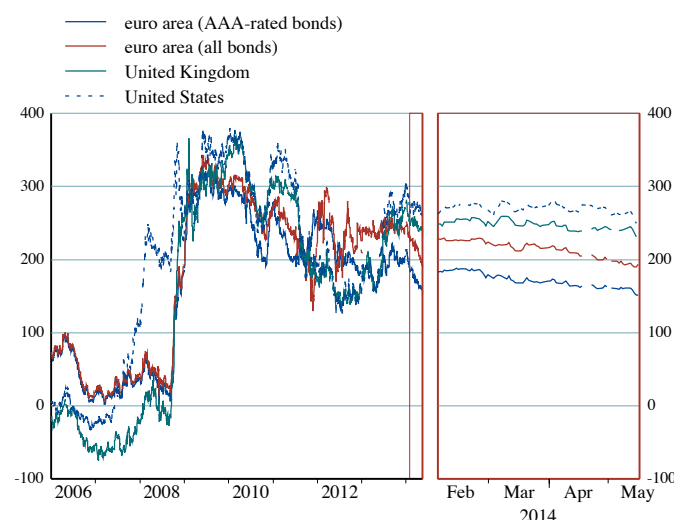
(1 Jan. 2007 - 16 May 2014; basis points; 3-month maturity)



Sources: Thomson Reuters, Bloomberg and ECB calculations.

S.2.5 Slope of government bond yield curves

(2 Jan. 2006 - 16 May 2014; basis points)

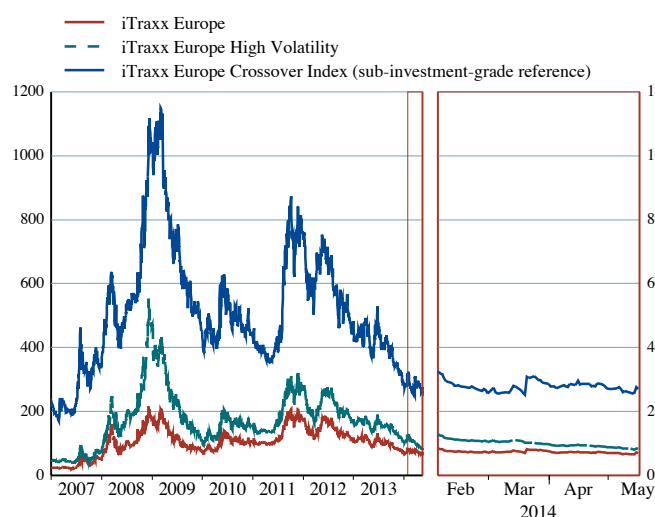


Sources: European Central Bank, Bank for International Settlements, Bank of England and Federal Reserve System.

Notes: The slope is defined as the difference between ten-year and one-year yields. For the euro area and the United States, yield curves are modelled using the Svensson model; a variable roughness penalty model is used to model the yield curve for the United Kingdom.

S.2.7 iTraxx Europe five-year credit default swap indices

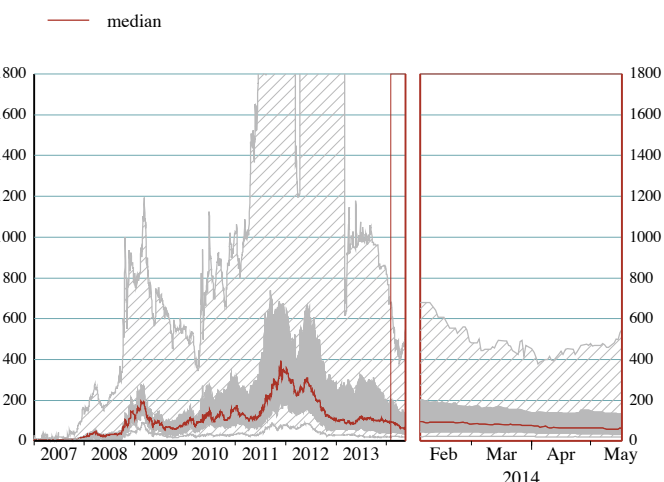
(1 Jan. 2007 - 16 May 2014; basis points)



Source: Bloomberg.

S.2.6 Sovereign credit default swap spreads for euro area countries

(1 Jan. 2007 - 16 May 2014; basis points; senior debt; five-year maturity)

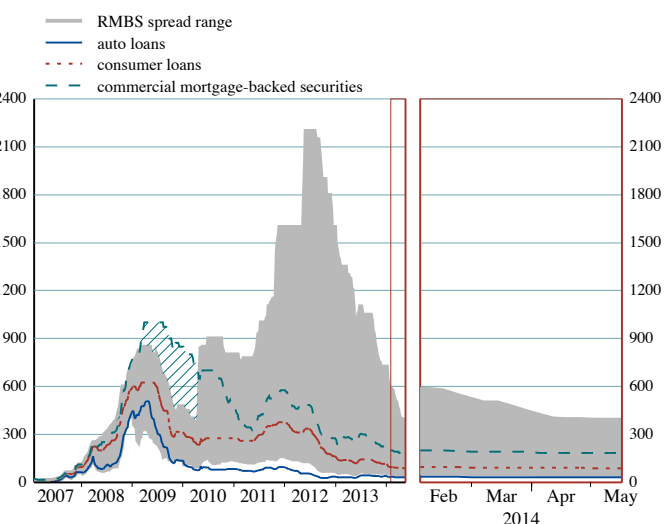


Sources: Thomson Reuters and ECB calculations.

Notes: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across national sovereign CDS spreads in the euro area. Following the decision by the International Swaps Derivatives Association that a credit event had occurred, Greek sovereign CDS were not traded between 9 March 2012 and 11 April 2012. Due to lack of contributors, Greek sovereign CDS spread is not available between 1st of March and 21 May 2013. For presentational reasons, this chart has been truncated.

S.2.8 Spreads over LIBOR of selected European AAA-rated asset-backed securities

(26 Jan. 2007 - 16 May 2014; basis points)

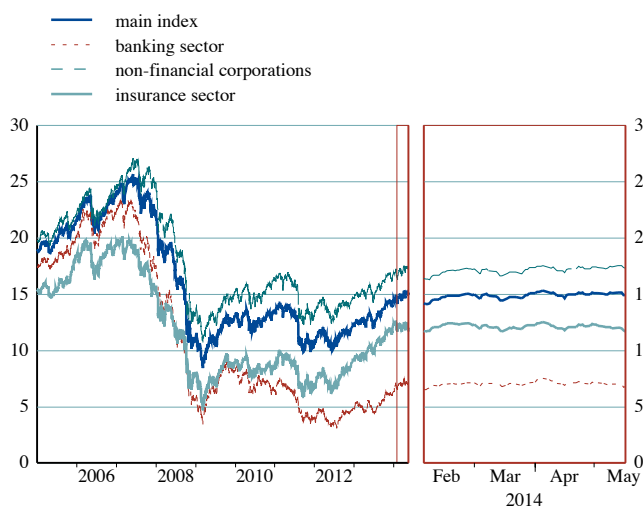


Source: JPMorgan Chase & Co.

Note: In the case of residential mortgage-backed securities (RMBSs), the spread range is the range of available individual country spreads in Greece, Ireland, Spain, Italy, the Netherlands, Portugal and the United Kingdom.

S.2.9 Price/earnings ratio for the euro area stock market

(3 Jan. 2005 - 16 May 2014; ten-year trailing earnings)

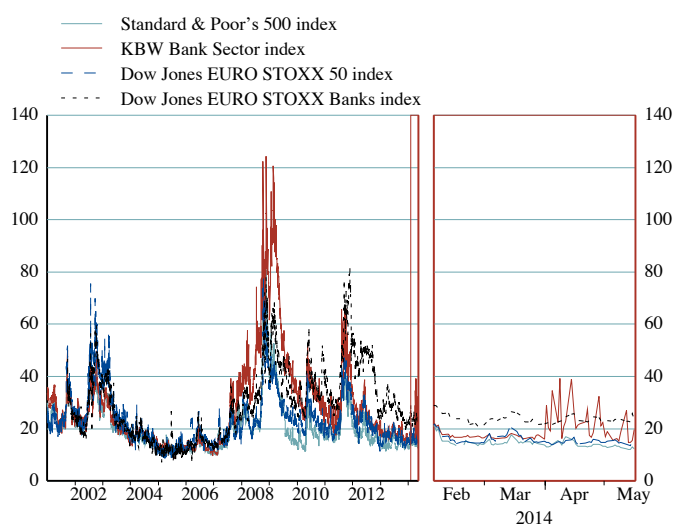


Sources: Thomson Reuters and ECB calculations.

Note: The price/earnings ratio is based on prevailing stock prices relative to an average of the previous ten years of earnings.

S.2.11 Implied volatilities

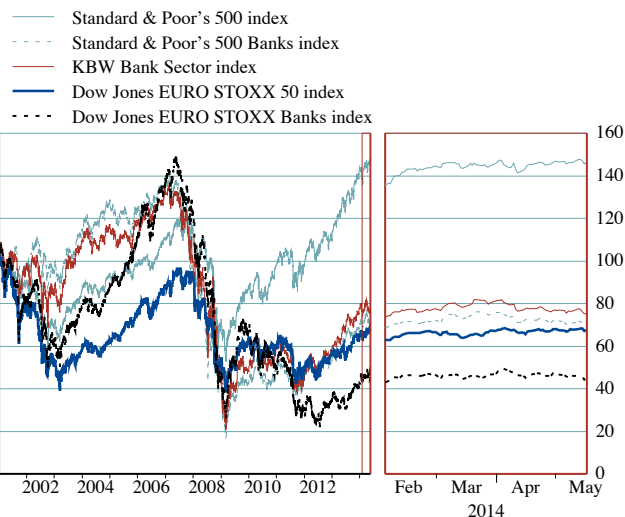
(2 Jan. 2001 - 16 May 2014; percentages)



Sources: Bloomberg and Thomson Reuters Datastream.

S.2.10 Equity indices

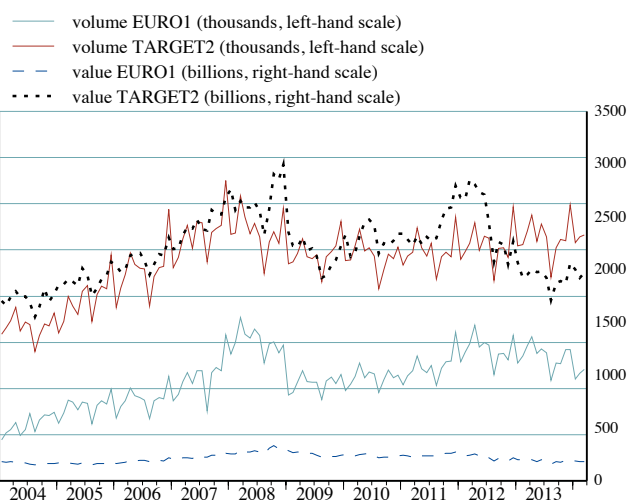
(2 Jan. 2001 - 16 May 2014; index: Jan. 2001 = 100)



Source: Bloomberg.

S.2.12 Payments settled by the large-value payment systems TARGET2 and EURO1

(Jan. 2004 - Mar. 2014; volumes and values)

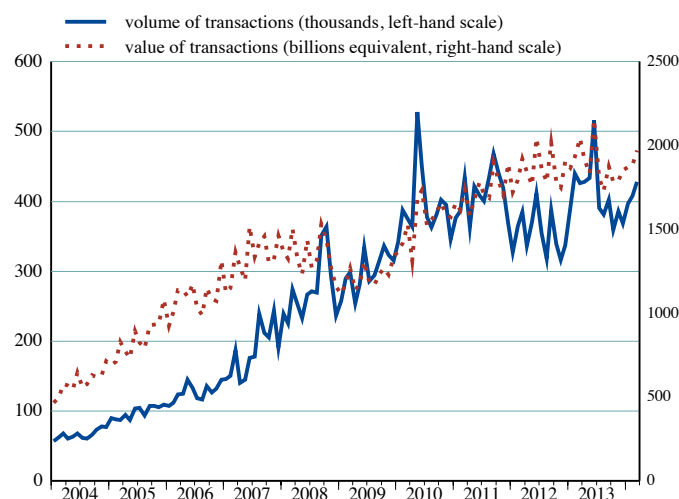


Source: ECB.

Notes: TARGET2 is the real-time gross settlement system for the euro. TARGET2 is operated in central bank money by the Eurosystem. TARGET2 is the biggest large-value payment system (LVPS) operating in euro. The EBA CLEARING Company's EURO1 is a euro-denominated net settlement system owned by private banks, which settles the final positions of its participants via TARGET2 at the end of the day. EURO1 is the second-biggest LVPS operating in euro.

S.2.13 Volumes and values of foreign exchange trades settled via the Continuous Linked Settlement Bank

(Jan. 2004 - Mar. 2014; volumes and values)

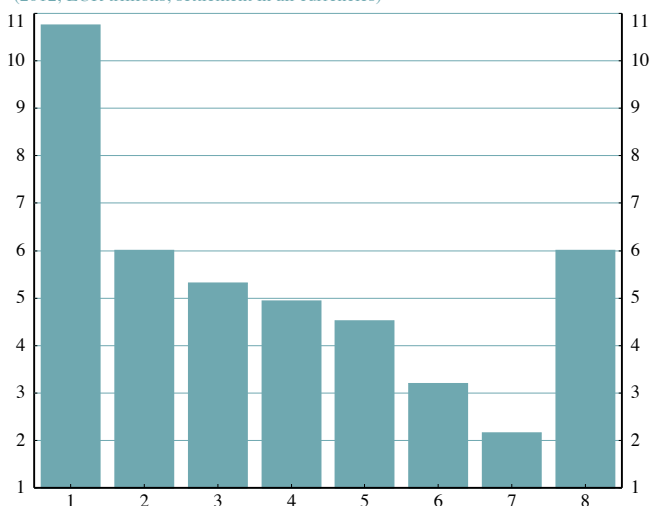


Source: ECB.

Notes: The Continuous Linked Settlement Bank (CLS) is a global financial market infrastructure which offers payment-versus-payment (PvP) settlement of foreign exchange (FX) transactions. Each PvP transaction consists in two legs. The figures above count only one leg per transaction. CLS transactions are estimated to cover about 60% of the global FX trading activity.

S.2.14 Value of securities held in custody by CSDs and ICSDs

(2012; EUR trillions; settlement in all currencies)

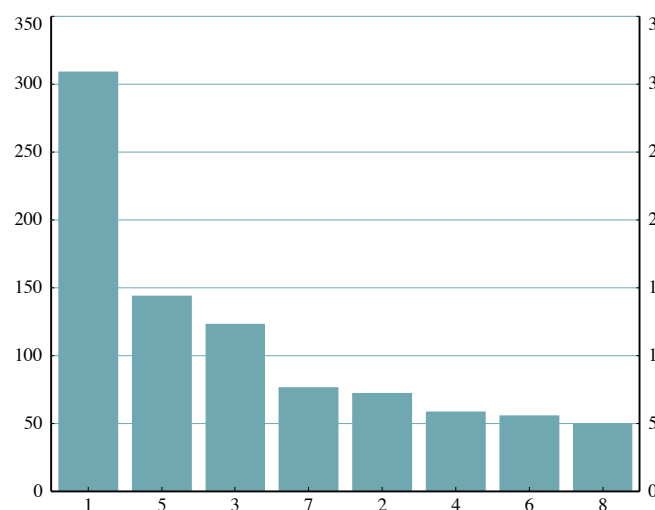


Source: ECB.

Notes: CSDs stands for central securities depositaries and ICSDs for international central securities depositaries. 1 - Euroclear Bank (BE); 2 - Clearstream Banking Frankfurt - CBF (DE); 3 - Euroclear France; 4 - Clearstream Banking Luxembourg-CBL; 5 - CRESTCo (UK); 6 - Monte Titoli (IT); 7 - Iberclear (ES); 8 - Remaining 31 CSDs in the EU.

S.2.15 Value of securities settled by CSDs and ICSDs

(2012; EUR trillions; settlement in all currencies)

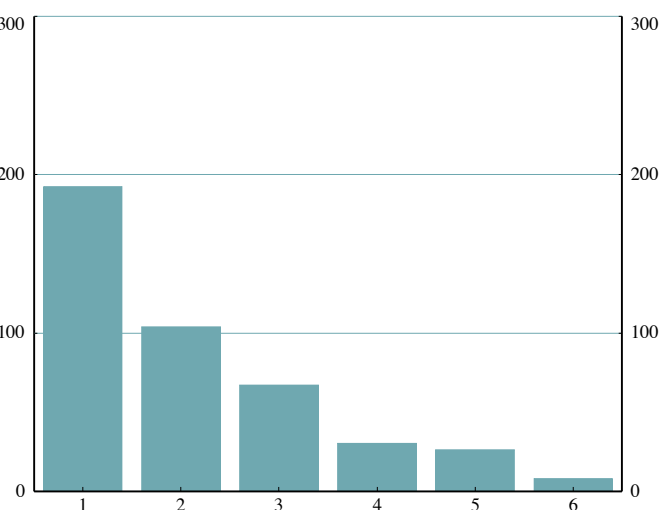


Source: ECB.

Note: See notes of Chart S.2.14.

S.2.16 Value of transactions cleared by central counterparties

(2012; EUR trillions)



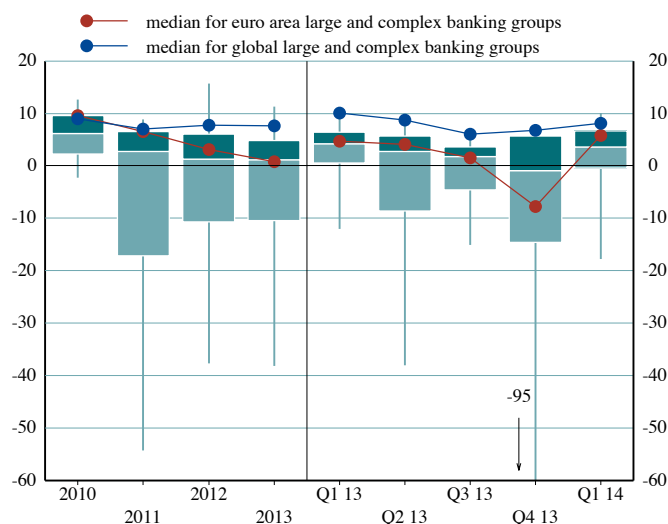
Source: ECB.

Notes: 1 - EUREX Clearing AG (DE); 2 - LCH.Clearnet Ltd; 3 - LCH Clearnet SA (FR); 4 - ICE Clear Europe (UK); 5 - CC&G (IT); 6 - Others. The chart includes outright and repo transactions, financial and commodity derivatives.

3 FINANCIAL INSTITUTIONS

S.3.1 Return on shareholders' equity for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

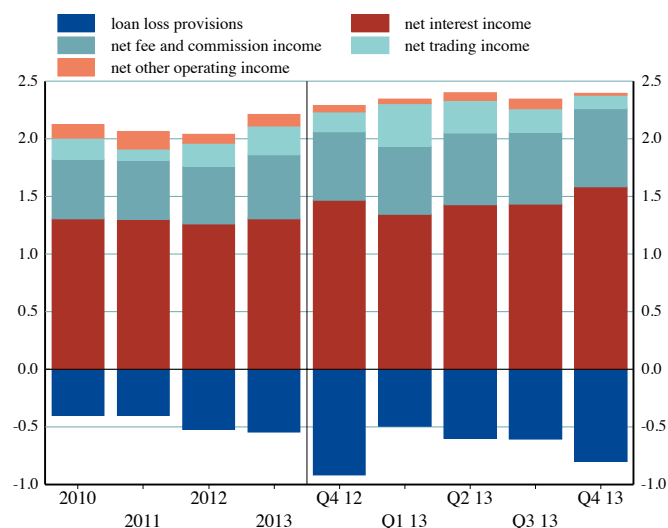


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Quarterly figures are annualised.

S.3.3 Breakdown of operating income for euro area significant banking groups

(2010 - Q4 2013; percentage of total assets; weighted average)

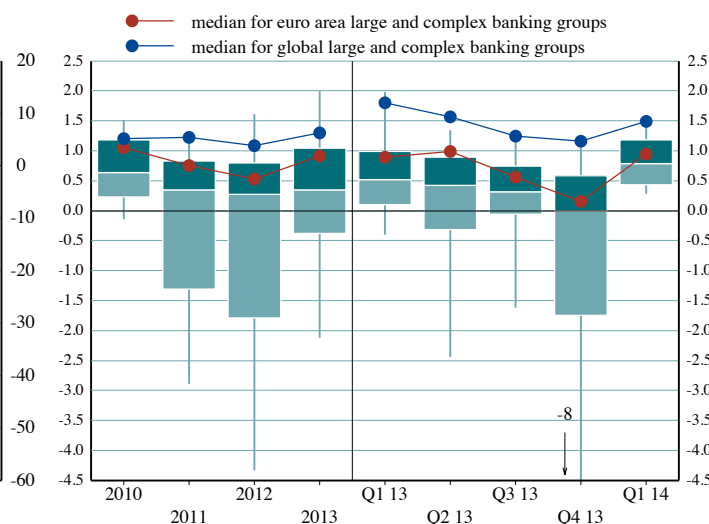


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Quarterly results are annualised. Annual and quarterly indicators are based on common samples of 68 and 32 significant banking groups in the euro area, respectively. Quarterly data for Q1 2014 are not included on account of the inadequate availability of interim results on the date of publication.

S.3.2 Return on risk-weighted assets for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

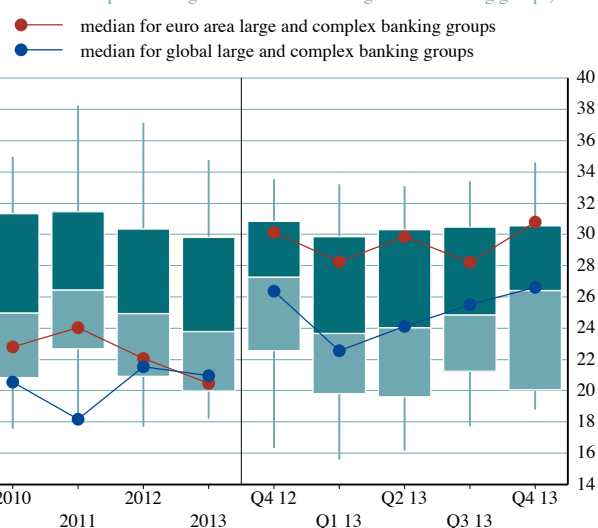


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Quarterly figures are annualised.

S.3.4 Diversification of operating income for euro area significant banking groups

(2010 - Q4 2013; individual institutions' standard deviation dispersion; 10th and 90th percentile and interquartile range distribution across significant banking groups)

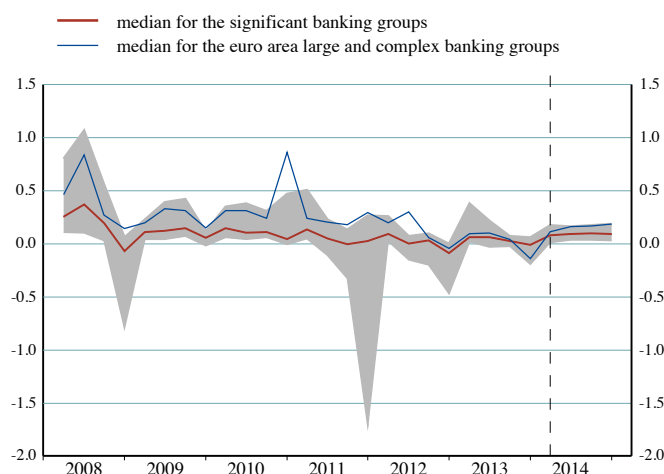


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. A value of "0" means full diversification, while a value of "50" means concentration on one source only. Annual and quarterly indicators are based on common samples of 72 and 32 significant banking groups in the euro area, respectively. Quarterly data for Q1 2014 are not included on account of the inadequate availability of interim results on the date of publication.

S.3.5 Actual and forecast earnings per share for euro area significant banking groups

(Q1 2008 - Q4 2014; EUR)

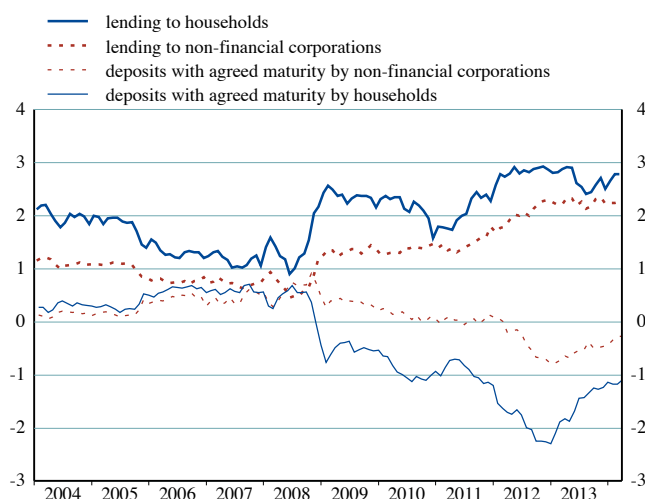


Sources: SNL Financial and ECB calculations.

Note: The shaded area indicates the interquartile ranges across the diluted earnings per share of selected significant banking groups in the euro area.

S.3.6 Lending and deposit spreads of euro area MFIs

(Jan. 2004 - Mar. 2014; percentage points)

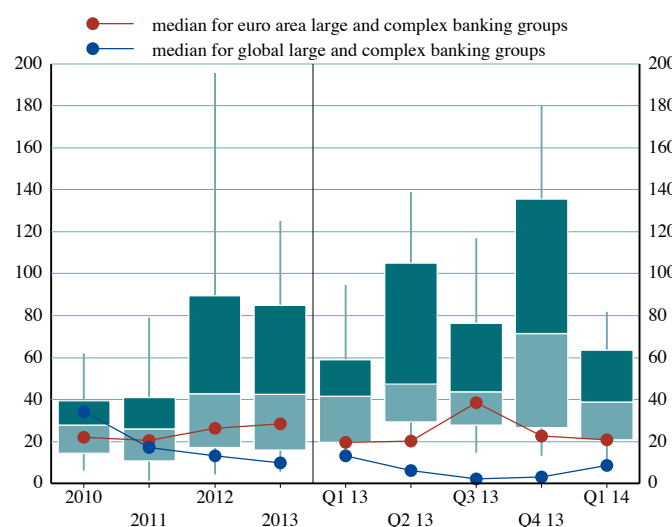


Sources: ECB, Thomson Reuters and ECB calculations.

Notes: Lending spreads are calculated as the average of the spreads for the relevant breakdowns of new business loans, using volumes as weights. The individual spreads are the difference between the MFI interest rate for new business loans and the swap rate with a maturity corresponding to the loan category's initial period of rate fixation. For deposits with agreed maturity, spreads are calculated as the average of the spreads for the relevant break-downs by maturity, using new business volumes as weights. The individual spreads are the difference between the swap rate and the MFI interest rate on new deposits, where both have corresponding maturities.

S.3.7 Net loan impairment charges for euro area significant banking groups

(2010 - Q1 2014; percentage of net interest income; 10th and 90th percentile and interquartile range distribution across significant banking groups)

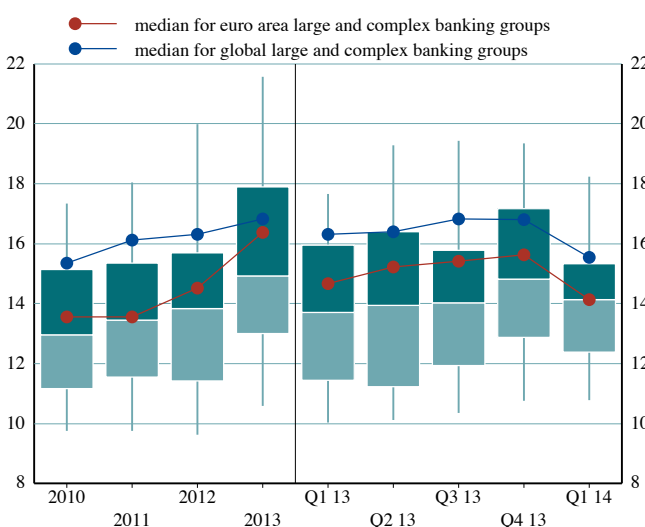


Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis.

S.3.8 Total capital ratios for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

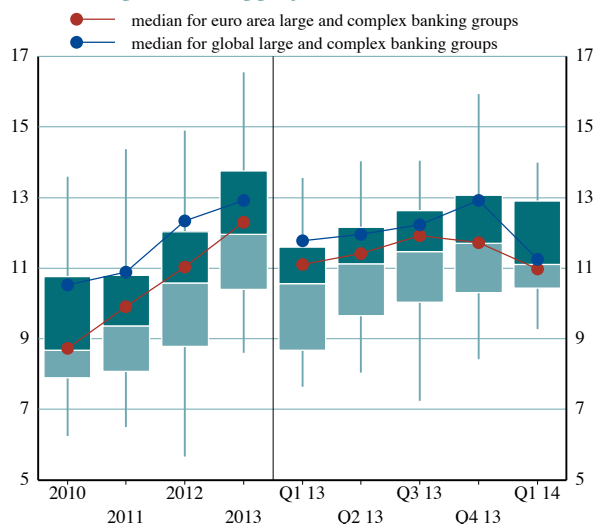


Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis.

S.3.9 Core Tier I capital ratios for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

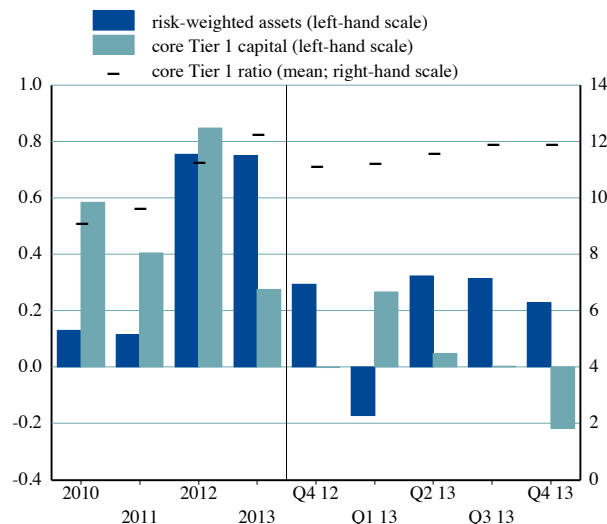


Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis.

S.3.10 Contribution of components of the core Tier I capital ratios to changes for euro area significant banking groups

(2010 - Q4 2013; percentages)

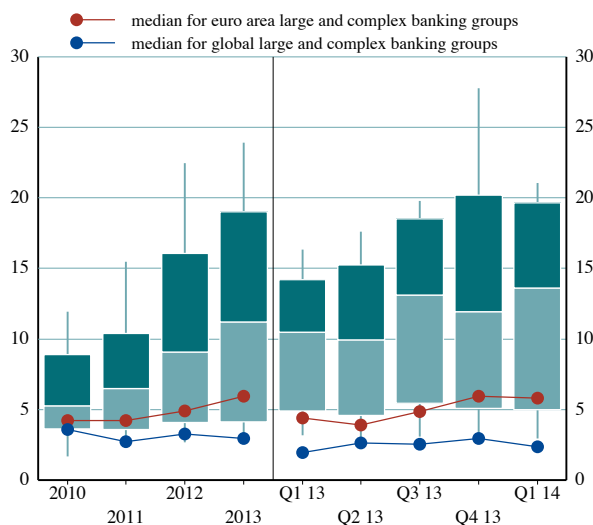


Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Annual and quarterly indicators are based on common samples of 47 and 29 significant banking groups in the euro area, respectively. Quarterly data for Q1 2014 are not included on account of the inadequate availability of interim results on the date of publication.

S.3.11 Non-performing loan ratios for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

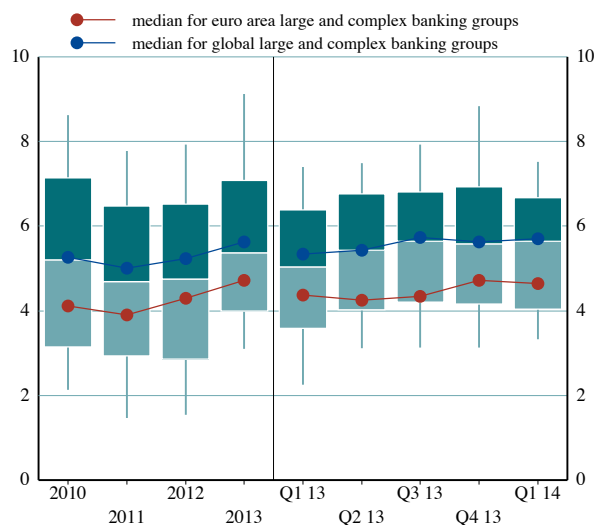


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. The non-performing loan ratio is defined as the ratio of impaired customer loans to total customer loans.

S.3.12 Leverage ratios for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

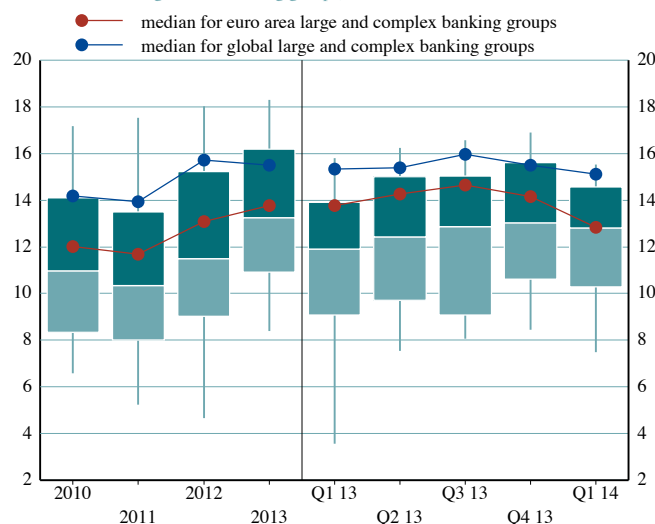


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly frequency. Leverage is defined as the ratio of shareholder equity to total assets.

S.3.13 Risk-adjusted leverage ratios for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

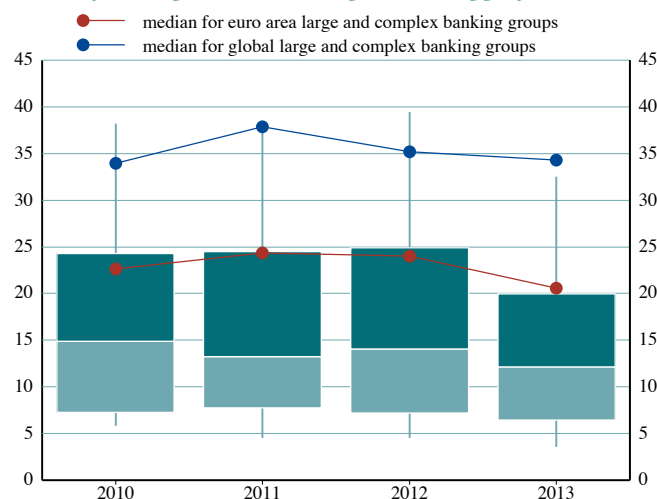


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Risk-adjusted leverage is defined as the ratio of shareholder equity to risk-weighted assets.

S.3.14 Liquid assets ratios for euro area significant banking groups

(2010 - 2013; percentage of total assets; 10th and 90th percentile and interquartile range distribution across significant banking groups)



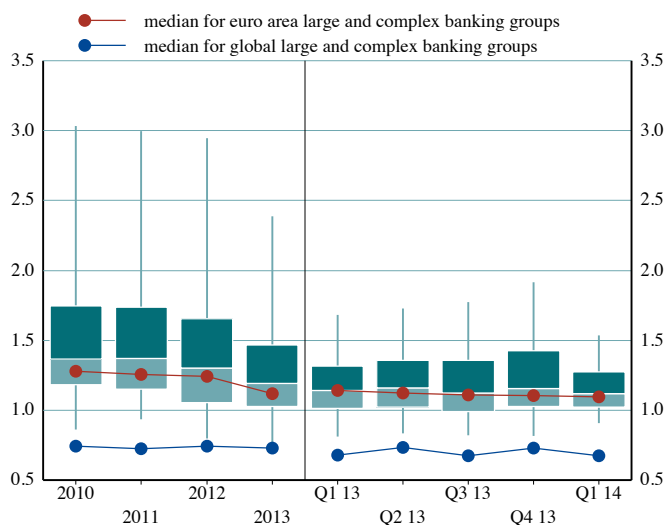
Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements. Liquid assets comprise cash and cash equivalents as well as trading securities.

Quarterly data are not included on account of the inadequate availability of interim results on the date of publication.

S.3.15 Customer loan-to-deposit ratios for euro area significant banking groups

(2010 - Q1 2014; multiple; 10th and 90th percentile and interquartile range distribution across significant banking groups)



Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis.

S.3.16 Interbank borrowing ratio for euro area significant banking groups

(2010 - Q1 2014; percentage of total assets; 10th and 90th percentile and interquartile range distribution across significant banking groups)

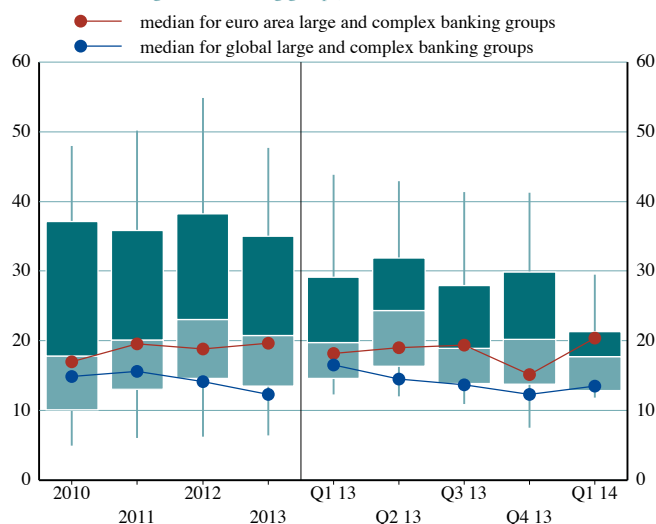


Sources: SNL Financial and ECB calculations.

Note: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis.

S.3.17 Ratios of short-term funding to loans for euro area significant banking groups

(2010 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution across significant banking groups)

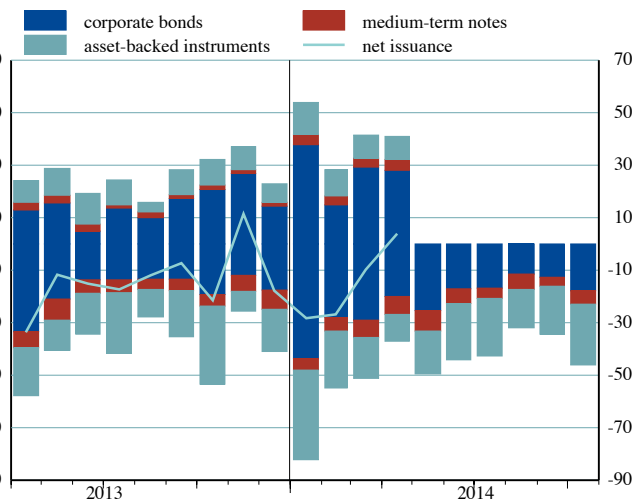


Sources: SNL Financial and ECB calculations.

Notes: Includes publicly available data for significant banking groups that report annual financial statements and a subset of those banks that report on a quarterly basis. Interbank funding is used as the measure of short-term funding.

S.3.18 Issuance profile of long-term debt securities by euro area significant banking groups

(Apr. 2013 - Oct. 2014; EUR billions)

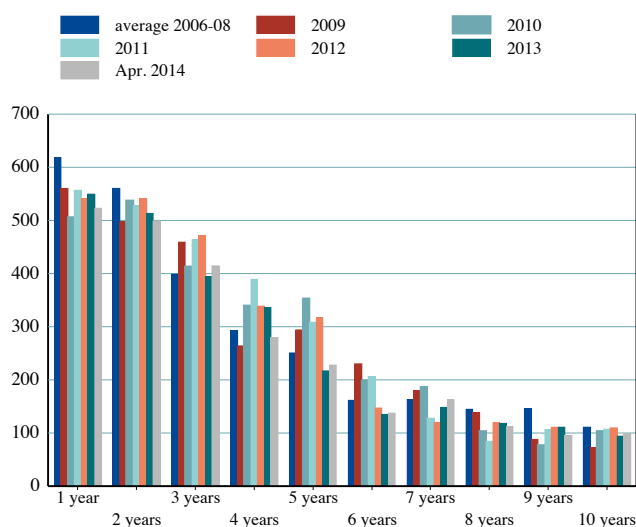


Sources: Dealogic DCM Analytics and ECB calculations.

Notes: Net issuance is the total gross issuance minus scheduled redemptions. Dealogic does not trace instruments after their redemption, so that some of the instruments may have been redeemed early. Asset-backed instruments encompass asset-backed and mortgage-backed securities, as well as covered bond instruments.

S.3.19 Maturity profile of long-term debt securities for euro area significant banking groups

(2006 - Apr. 2014; EUR billions)

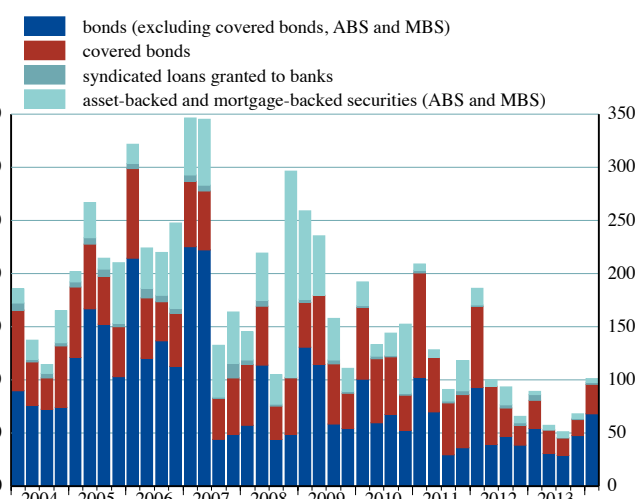


Sources: Dealogic DCM Analytics and ECB calculations.

Notes: Data refer to all amounts outstanding at the end of the corresponding year/month. Long-term debt securities include corporate bonds, medium-term notes, covered bonds, asset-backed securities and mortgage-backed securities with a minimum maturity of 12 months.

S.3.20 Issuance of syndicated loans and bonds by euro area banks

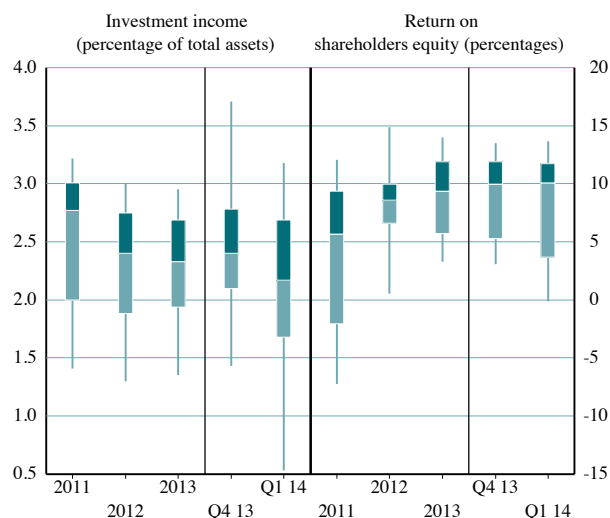
(Q1 2004 - Q1 2014; EUR billions)



Sources: Dealogic DCM Analytics, Thomson Reuters and ECB calculations.

S.3.21 Investment income and return on equity for a sample of large euro area insurers

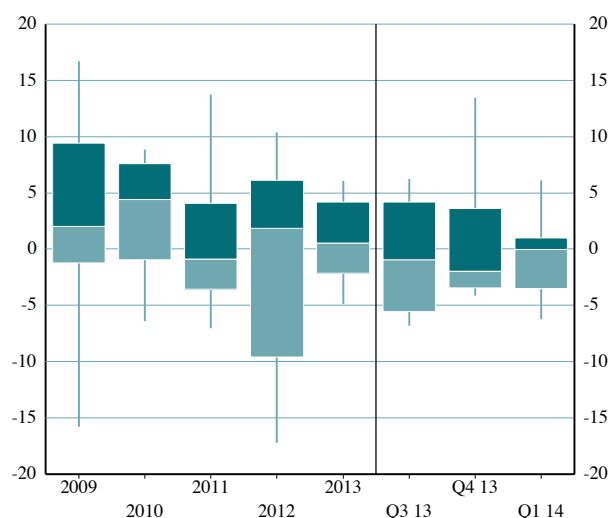
(2011 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution)



Sources: Bloomberg, individual institutions' reports and ECB calculations.
Notes: Based on available figures for 21 euro area insurers and reinsurers.

S.3.22 Gross-premium-written growth for a sample of large euro area insurers

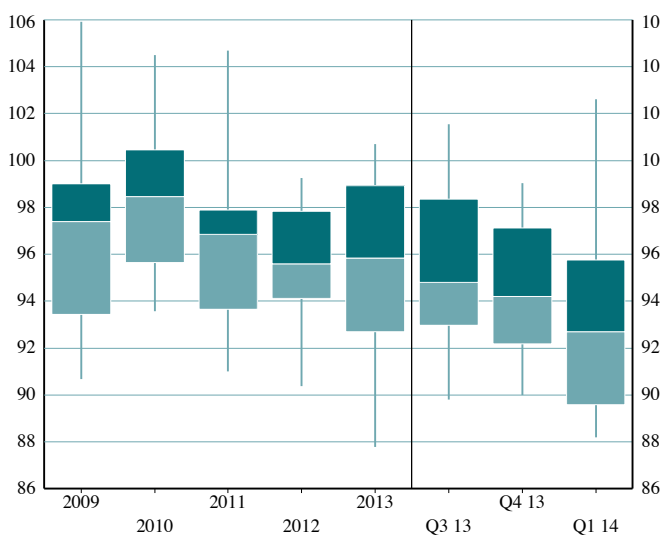
(2009 - Q1 2014; percentage change per annum; 10th and 90th percentile and interquartile range distribution)



Sources: Bloomberg, individual institutions' reports, and ECB calculations.
Note: Based on available figures for 21 euro area insurers and reinsurers.

S.3.23 Distribution of combined ratios for a sample of large euro area insurers

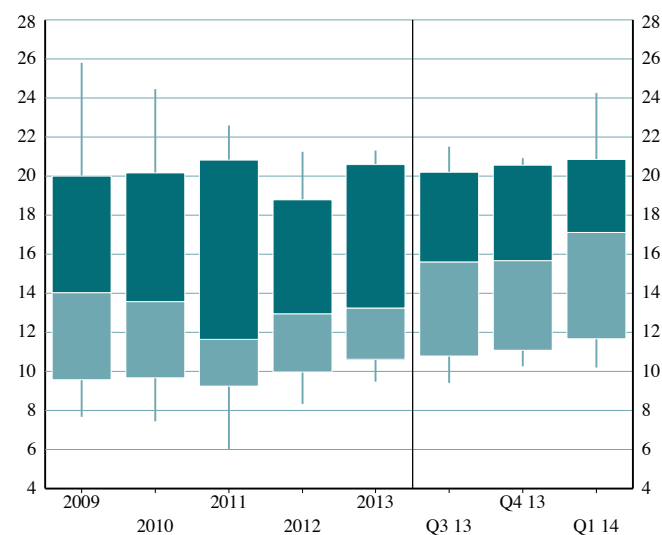
(2009 - Q1 2014; percentages; 10th and 90th percentile and interquartile range distribution)



Sources: Bloomberg, individual institutions' reports and ECB calculations.
Notes: Based on available figures for 21 euro area insurers and reinsurers.

S.3.24 Capital distribution for a sample of large euro area insurers

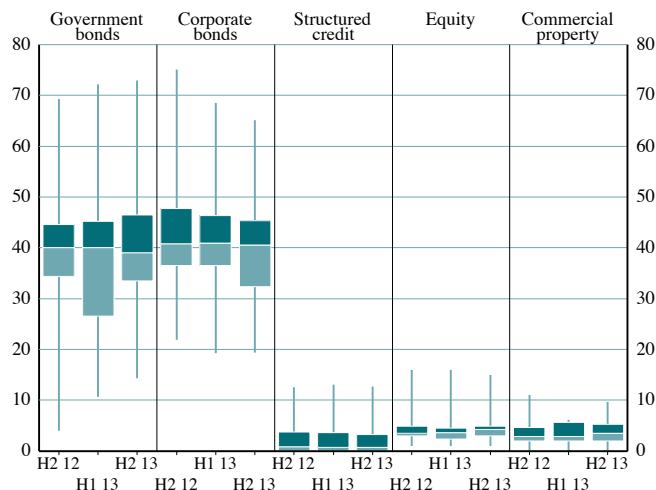
(2009 - Q1 2014; percentage of total assets; 10th and 90th percentile and interquartile range distribution)



Sources: Bloomberg, individual institutions' reports and ECB calculations.
Notes: Capital is the sum of borrowings, preferred equity, minority interests, policyholders' equity and total common equity. Data are based on available figures for 21 euro area insurers and reinsurers.

S.3.25 Investment distribution for a sample of large euro area insurers

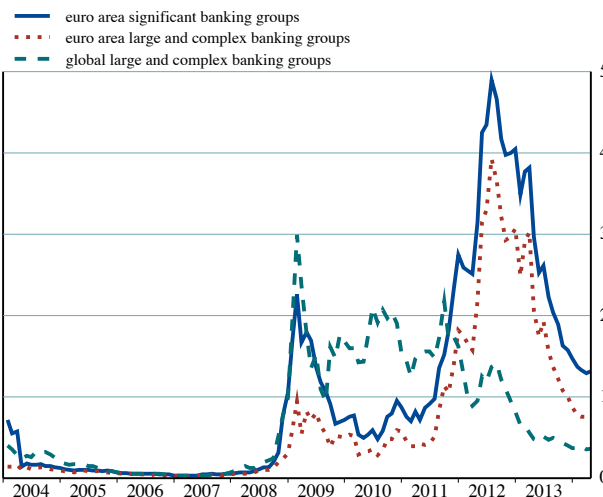
H2 2012 - H2 2013; percentage of total investments; minimum, maximum and interquartile distribution)



Sources: Individual institutions' financial reports and ECB calculations.
Notes: Equity exposure data exclude investments in mutual funds. Data are based on available figures for 14 euro area insurers and reinsurers.

S.3.26 Expected default frequency for banking groups

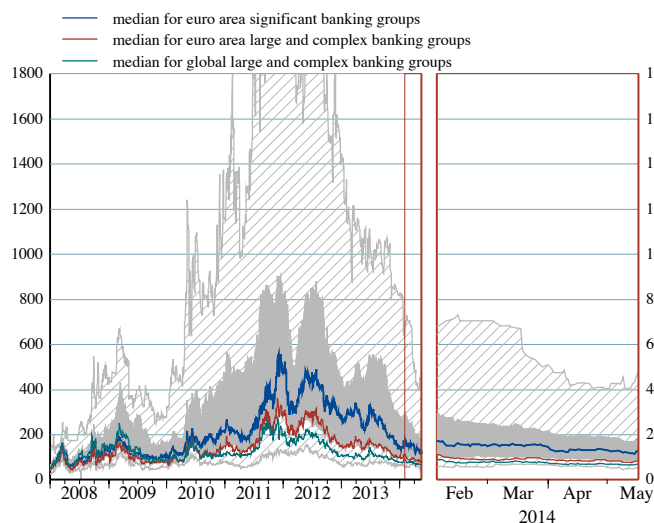
(Jan. 2004 - Apr. 2014; percentages; weighted average)



Sources: Moody's KMV and ECB calculations.
Note: The weighted average is based on the amounts of non-equity liabilities.

S.3.27 Credit default swap spreads for euro area significant banking groups

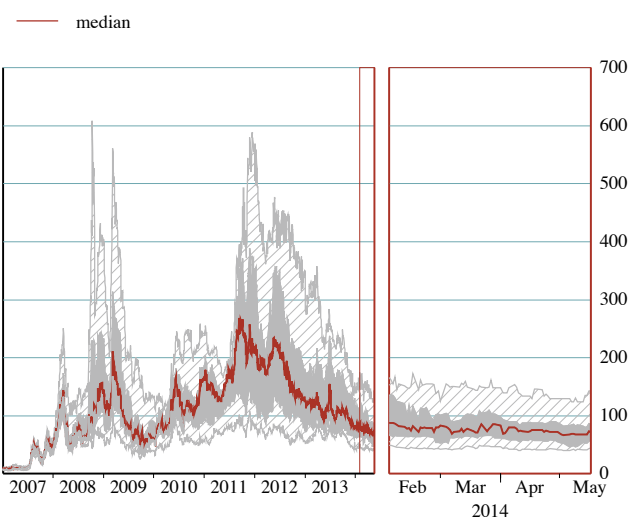
(1 Jan. 2008 - 16 May 2014; basis points; senior debt; five-year maturity)



Sources: Thomson Reuters, Bloomberg and ECB calculations.
Note: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across the CDS spreads of selected large banks. For presentational reasons, this chart has been truncated.

S.3.28 Credit default swap spreads for a sample of large euro area insurers

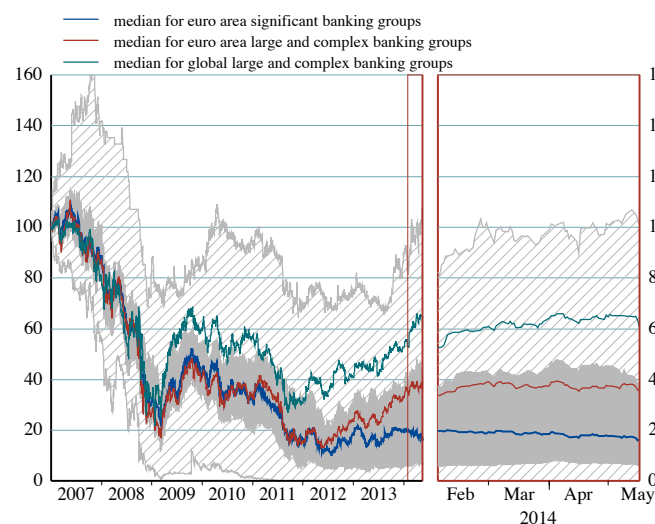
(3 Jan. 2007 - 16 May 2014; basis points; senior debt; five-year maturity)



Sources: Thomson Reuters, Bloomberg and ECB calculations.
Note: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across the CDS spreads of selected large insurers.

S.3.29 Stock performance of the euro area significant banking groups

(3 Jan. 2007 - 16 May 2014 ; index: 2 Jan. 2007 = 100)

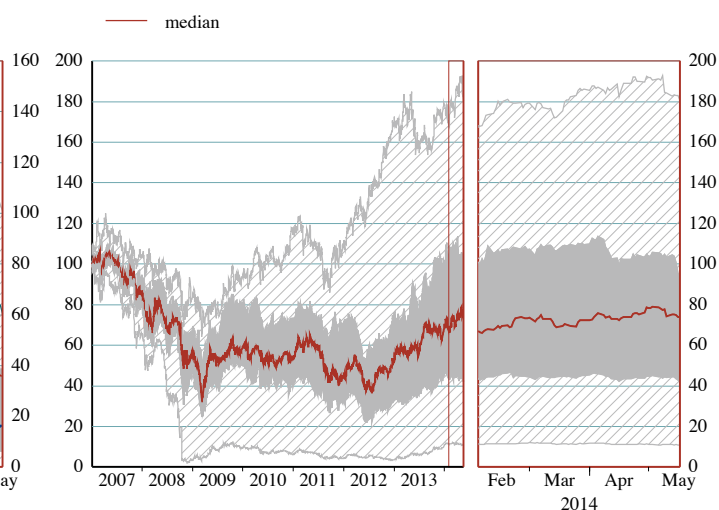


Sources: Thomson Reuters , Bloomberg and ECB calculations.

Note: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across equities of selected large insurers. this chart has been truncated.

S.3.30 Stock performance of a sample of large euro area insurers

(3 Jan. 2007 - 16 May 2014 ; index: 2 Jan. 2007 = 100)



Sources: Thomson Reuters , Bloomberg and ECB calculations.

Note: The hatched/shaded areas indicate the minimum-maximum and interquartile ranges across equities of selected large insurers.

