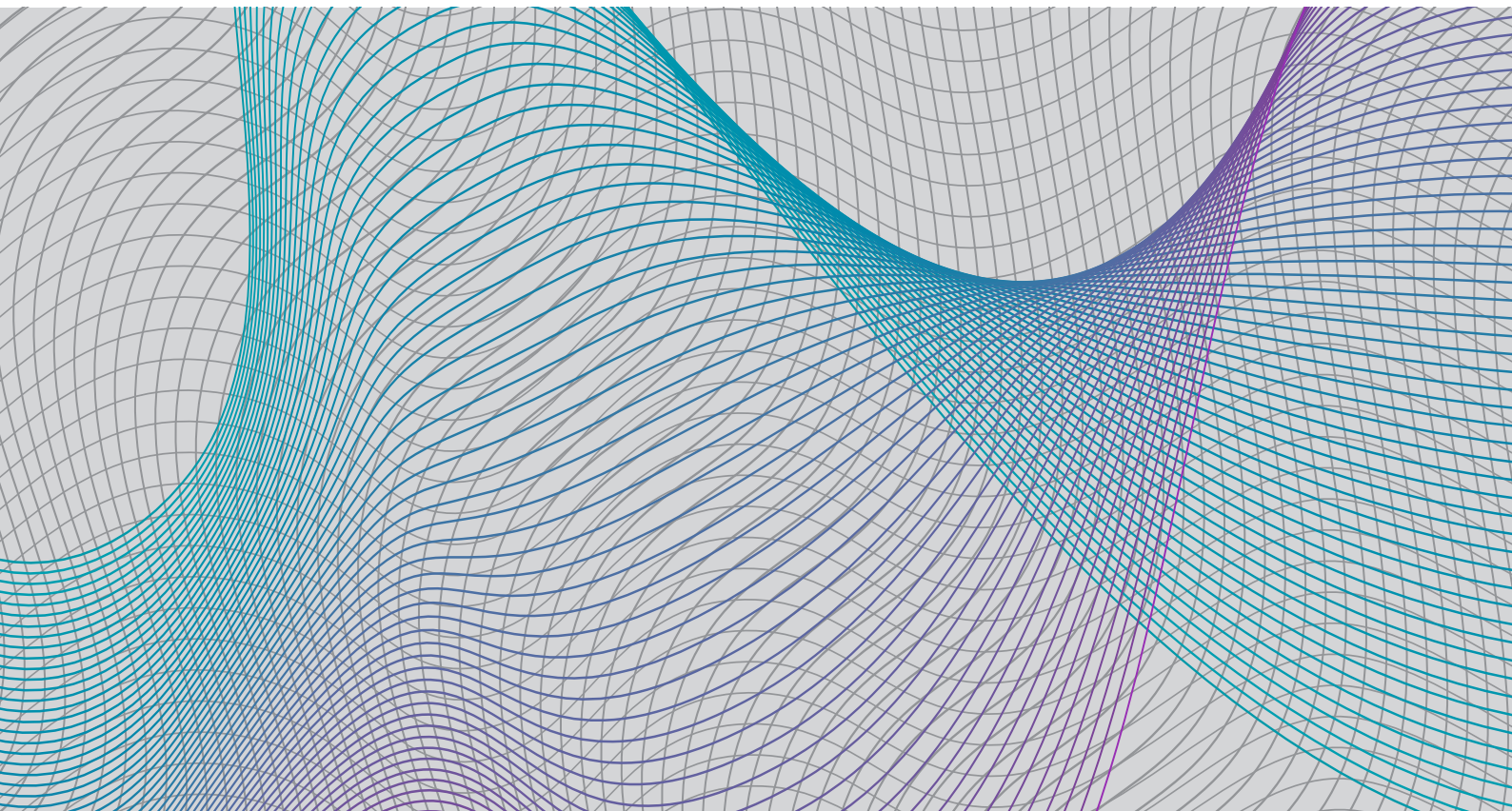




Financial Stability Review 2014



Deutsche Bundesbank
Wilhelm-Epstein-Strasse 14
60431 Frankfurt am Main, Germany

Postfach 10 06 02
60006 Frankfurt am Main, Germany

Tel +49 69 9566-0
Fax +49 69 9566-3077

<http://www.bundesbank.de>

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Abbreviations and symbols

p	Provisional
e	Estimated
.	Data unknown, not to be published or not meaningful
–	Nil

Discrepancies in the totals are due to rounding.

Introduction

The Bundesbank's key task is to safeguard price stability. It also has a statutory mandate to contribute to ensuring financial stability. The Financial Stability Committee (*Ausschuss für Finanzstabilität* – AFS) was established in Germany in 2013, and includes representatives of the Bundesbank. The AFS discusses issues that are key to financial stability, based on the Bundesbank's analyses. It can issue warnings and recommendations. The Bundesbank also performs important tasks relating to stability policy by way of its involvement in banking supervision and in the operation of payment systems.

In addition to its key role in macroprudential oversight at the national level, the Bundesbank is closely involved in the corresponding European structures. For one thing, the Bundesbank President is a voting member of the European Systemic Risk Board (ESRB), which is responsible for macroprudential oversight of the financial system of the entire EU. For another, the Bundesbank helps to implement financial stability measures within the euro area. The Eurosystem has appointed a Financial Stability Committee (FSC) for this purpose, on which the Bundesbank is represented. Macroprudential measures in respect of banks can not only be issued nationally, but can also be strengthened by the European Central Bank (ECB). The decision on taking such measures is the responsibility of the Governing Council of the ECB.

The Bundesbank defines financial stability as the financial system's ability to perform its key macroeconomic functions, especially in periods of stress and upheaval. The objective of financial stability policy is

to strengthen the resilience of the financial system. Traditional banking supervision aims to ensure the stability of individual institutions. This means that risks to the economy as a whole arising from individual institutions or groups of institutions that are experiencing distress are not the main focus.

The Bundesbank applies a risk-based approach to analysing systemic stability. It examines scenarios which could cause major harm to the whole economy, even though the probability of their occurrence appears slight. Projections, by contrast, describe the most likely developments. Whether or not a financial system is sufficiently robust in the face of downside scenarios depends mainly on the level of capital adequacy. The more capital in the system, the better equipped market participants are to deal with crises using their own resources.

An array of macroprudential instruments can be used to contain risks to stability. There is still little actual experience of applying many of these instruments, which underscores the importance of a structured impact study if they are to be deployed effectively and efficiently.

This Review reflects the Bundesbank's assessment of risk and resilience in the German financial system. It also addresses the implications for financial stability of the European banking union, which was launched on 4 November 2014.

Account has been taken of ongoing developments up to the cut-off date of 21 November 2014.

Overview

The situation in the international financial markets in 2014 has been marked by low interest rates, accompanied by the provision of ample liquidity by central banks. In Europe, in particular, the expansionary monetary policy is a response to low inflation in what is a weak economic setting overall. Much of this weakness is due to structural problems. However, these cannot be solved through monetary policy measures but solely through appropriate reforms. While those European countries that have launched structural reforms are seeing clear signs of real economic recovery, some core euro-area countries are making only sluggish progress in implementing the necessary reforms. The need to consolidate public budgets in the light of high government debt levels has been repeatedly called into question. However, it is the core task of economic policy to enhance the conditions for real economic growth.

A major reform with respect to financial stability was the launch of the European banking union. Activities in 2014 have focused on creating the requisite institutional and organisational framework. One of the central pillars of the banking union is the Single Supervisory Mechanism (SSM), which commenced operations on 4 November 2014. This entailed the transfer of extensive microprudential and macroprudential powers to the European Central Bank (ECB).

Getting the banking union off to a credible start and creating sustainable structures in the European banking sector are key to winning financial markets' trust. While euro-area banks' total exposure to euro-area borrowers has dropped from 191% to 168%

Getting the banking union off to a credible start and creating sustainable structures in the European banking sector are key to winning trust.

of gross domestic product (GDP) since the financial crisis erupted in 2008, adjustment has been uneven across countries. Hardly any adjustment has occurred in the euro area in the form of a market exit of (larger) banks.

A first step towards enhancing confidence in the banking sector was the comprehensive assessment carried out by the ECB and comprising an asset quality review of 130 euro-area banks and a stress test. A key objective was to create transparency prior to the launch of the SSM, to detect any legacy problems and capital shortfalls and to enable the necessary adjustments to be made. The ECB's comprehensive assessment confirmed that the balance sheets of the 25 participating German institutions are sound and that these banks are robust enough to withstand a simulated severe economic shock. Only one German bank had a capital shortfall as at 31 December 2013; however, this bank has significantly strengthened its capital base over the course of 2014, thus plugging the identified gap. Despite this positive outcome, German banks should nonetheless continue their efforts to improve both their capital cover and their profitability, not least in view of the fact that they are still lagging behind other European countries in terms of their leverage ratio.

Signs of riskier investor behaviour

The currently low interest rates, along with low volatility in the markets, are prompting an intensified search for yield. There is a danger that investors may be willing to take greater risks. Although searching for a higher yield represents normal investor behaviour, such behaviour can become problematical and jeopardise the functioning of the financial system

if investors fail to maintain adequate risk buffers. Ensuring that banks have an adequate capital base makes a key contribution to the stability of the financial system. In addition, it must be assured that investment decisions are not distorted by regulations or by implicit government guarantees.

There are signs that the search for yield is leading to exaggerations in certain market segments. The first

There are signs that the search for yield is leading to exaggerations in certain market segments.

chapter of this Review, entitled “Low interest rates – risks to financial stability?”, reveals that investors have increasingly been incurring risks during the

current phase of low interest rates, which has persisted for some years now. This effect is clearly perceptible in the markets for corporate bonds and syndicated loans. The indications are less pronounced in other markets.

Enterprises are increasingly tapping non-bank funding sources, which suggests that structural adjustments are occurring in the German financial system. For instance, firms are now obtaining funding by borrowing from non-banks and have recently stepped up their bond issuance. In addition, small and medium-sized enterprises (SMEs), in particular, have been increasingly retaining their earnings, thereby strengthening their capital base, in some cases significantly. For one thing, this improves the ability to finance innovation; for another, equity is a better buffer against shocks than debt as equity investors participate directly in an enterprise’s profits and losses. The broader the investor base, the more potential losses are spread over a larger number of shoulders.

However, recourse by enterprises to new sources of debt finance concurrently carries the danger that risks might build up outside the banking sector and jeopardise systemic stability. In response to this, the

supervisory and regulatory authorities are monitoring such developments, setting up additional reporting schemes and, where necessary, taking regulatory initiatives. Yet it is ultimately up to investors to hold sufficient capital as a buffer during possible periods of stress and to align their expected returns with real economic developments.

German banks and insurers have largely resisted the temptation to incur greater risk. In particular, they have not significantly increased their investment in lightly regulated vehicles such as hedge funds and credit funds. Banks have tended to de-risk, while insurers, on the whole, have pursued cautious investment strategies. During the financial crisis, it was particularly risks resulting from lending to non-residents which put a strain on German banks. As a result, German banks considerably reduced their exposure to foreign obligors. On the whole, however, the German financial system is still closely interconnected, particularly with other euro-area countries.

German banks’ capital ratios higher despite weak earnings

Against this backdrop, the chapter entitled “Risk situation in the German financial system” discusses the resilience of German banks and insurers. In the past few years German financial institutions have set up additional provisions for future risks. The aggregate tier 1 capital ratio of all German banks, measured in terms of their risk-weighted assets (RWA), rose from 8.9% in March 2008 to 15.3% in December 2013. Over the same period, German banks raised their capital ratio in relation to total assets from 4.8% to 5.8%, thus lowering their leverage. Tighter regulatory capital requirements and preparations for the ECB’s comprehensive assessment programme played a major role in prompting banks to strengthen their capital base.

The Bundesbank has analysed the banking industry's resilience under various macroeconomic stress scenarios. These simulations show that, although losses arising from an abrupt increase in short-term interest rates as well as from an adverse housing market scenario would cause profits to drop considerably, the individual occurrence of such events would be manageable. However, experience has shown that macroeconomic risks generally do not occur singly. A cumulation of risks could pose problems for the German financial sector.

German banks' profitability remains structurally weak. They therefore remain vulnerable to financial market shocks and to a protracted phase of low interest rates.

German banks' profitability remains structurally weak.

If interest rates remain depressed for the foreseeable future, banks' earnings could come under heightened pressure: higher-yielding loans will then have to be rolled over into lower-yielding loans, thus reducing net interest income. To make matters worse, banks would not be able to offset falling lending rates by further cutting deposit rates, which at many banks are already close to 0%.

Whereas business trends in the German insurance industry have been very positive on the whole, particularly life insurers are affected by low interest rates

Life insurers are affected by low interest rates owing to high guaranteed payments.

owing to their high guaranteed payments. For instance, while their own funds have remained constant, the regulatory own funds requirements have been raised. This results overall in a lower solvency ratio. Moreover, the German insurance industry is in the midst of adjusting to a new regulatory regime (Solvency II) which, irrespective of other things, is obliging them to reinforce their capital base.

Mortgage loans under observation

Financial crises have often been triggered in the past by exaggerations on real estate markets. The chapter entitled "Mortgage loans under observation" examines to what extent there are signs in Germany of an overexpansion of residential mortgage lending and of an easing of credit standards.

The Bundesbank's analyses show very few signs of procyclical behaviour by banks or of a destabilising nexus between mortgage lending and

It is striking that, in towns and cities with sharply rising housing prices, a large share of mortgages have a sustainable LTV ratio of over 100%.

property prices. However, it is striking that, in the towns and cities under consideration with sharply rising housing prices, a large share of mortgages have a German sustainable loan-to-value ratio (*Beleihungsauslauf**) of over 100%. This points to structural vulnerabilities in the German banking system to urban real estate market risks.

It therefore remains necessary to monitor potential systemic weaknesses, to take any regulatory countermeasures that may be necessary and to chart the appropriate course for a sustainable development of the banking system in Germany. The establishment of a Financial Stability Committee (FSC) in Germany in 2013 created an institution which is intended to ensure the coordinated monitoring of threats to financial stability. The FSC regularly discusses financial stability risks in Germany and has focused to date on developments in the German housing market and the situation of German life insurers and credit institutions. The analyses for the FSC are prepared by the Bundesbank and *inter alia* cover the issue of whether any potential risks to financial stability can

* *Beleihungsauslauf* is the German term used to express the ratio of a loan to the mortgage lending value of a property. It is intended to reflect the sustainable value of a property and is generally calculated by means of a haircut on the market value.

be contained by using macroprudential instruments. Since the impact of these instruments is usually lagged, they must be made available in a timely fashion and be capable of preventive deployment if needed. High-quality data are a precondition for analysing and assessing measures. The Bundesbank is therefore working on improving the availability of data for macroprudential analyses.

Enhancing confidence in the financial sector

Events in the autumn of 2014 showed how quickly an apparently tranquil situation in the financial markets can transmute into heightened market turbulence. Some markets began to display price volatility as a result of increased uncertainty about future market and economic developments. Doubts about the consolidation of government finances in faltering economies contributed to the volatility. Uncertainty is part of normal market processes. However, one cause of uncertainty is that, although the legal basis has been created for many reforms, such as the new rules on national budgetary policy or the banking union, it has not yet been tested in practice.

It is therefore a policy task to ensure that the new institutional rules are applied rigorously and that

Disclosing risks on banks' balance sheets and driving forward the necessary structural change in the banking sector can foster growth in the real economy.

confidence in the European financial sector is further strengthened. The ECB's comprehensive assessment, which was designed to reduce uncertainty about the assessment of banks

and detect any potential risks, was a key step towards that objective. It has emerged that disclosing risks on banks' balance sheets and driving forward the necessary structural change in the banking sector can foster growth in the real economy. In particu-

lar, it should be made possible for banks without a sustainable business model to exit the market.

Banking union will strengthen liability of shareholders and creditors

The loss risks disclosed by the comprehensive assessment, should they materialise, will have to be borne at the national level. A decisive difference compared with earlier stages of the crisis is that, from 2015, harmonised European legal procedures for restructuring and, if necessary, resolving distressed banks will be introduced with the Bank Recovery and Resolution Directive (BRRD). This new institutional framework is discussed in the chapter entitled "Implications of the banking union for financial stability". A centrepiece of the new rules is the bail-in instrument, which as part of the BRRD has to be transposed into national law by 2016 at the latest. In a bail-in event, shareholders and creditors will in future have to bear part of a bank's recovery or resolution costs according to a clearly defined liability cascade.

Shareholders and creditors will in future have to bear part of the recovery or resolution costs.

The use of fiscal resources to resolve banks can only be a last resort and should be employed, if at all, solely as a stopgap measure. Government support must be in the public interest and be granted solely to avoid systemic crises. As a general rule, fiscal resources will come into play only after recourse has been taken to shareholders, creditors and the Single Resolution Fund (SRF), which is funded by contributions from European banks. In the medium term, the use of public resources should therefore no longer be necessary. Until the SRF is fully funded and operational, the provision of national fiscal backstops can contribute indirectly to the process of giving sustainable credibility to an extensive bail-in of the private

sector. The bigger the bail-in of a bank's shareholders and creditors, the smaller any recourse to the national backstop will need to be.

Discretionary scope regarding bail-ins should be limited

There is no automatic guarantee that the new rules will achieve their desired effect through their adoption alone. Ultimately it will require the political will to apply them rigorously and to hold private creditors liable. The fact that the authorities have been given a certain amount of discretionary scope could prove problematical. A bail-in of creditors may be waived if it would jeopardise the stability of the financial system. The authorities responsible for bank recovery and resolution face a conflict of interest. On the one hand, rigorous implementation of creditor liability could threaten the stability of the financial system if contagion effects emerge at central nodes of the system. On the other hand, any exception to creditor liability increases the likelihood of recourse to the public purse. The discretion to waive the bail-in rule must be used responsibly; otherwise, there is a danger that the necessary process for resolving banks will not be introduced at all and that the task of tackling structural problems will be put off indefinitely.

The new bail-in rules have yet to be tested. It would be desirable to introduce them ahead of schedule in other countries, too, as is envisaged for Germany. This would help not least with any required recovery and resolution of internationally active banks prior to 2016.

Exceptions to the principle of creditor liability should be minimised, particularly to enhance confidence in the functioning of the new rules and to reduce uncertainty. Exceptions that are invoked to ostensibly pro-

Exceptions to the principle of creditor liability should be minimised.

tect the financial system but in effect merely serve to protect individual creditors or groups of creditors will create moral hazard. Although, in principle, there are rules governing who is to pick up the bill if exceptions to creditor liability are granted, it is uncertain whether it will be possible to apply the rules as envisaged under time pressure in an actual resolution event. For this reason, too, the bar for exceptions should be set high. Otherwise, growing stability risks could arise in the future under the guise of protecting systemic stability.

Rigorous application of the new rules for dealing with distressed banks could take pressure off other policy areas. In order to be effective, monetary policy needs a healthy financial sector. At the same time, the task of resolving structural problems in the financial sector exceeds both the mandate and means of monetary policy. Since, following the launch of the banking union, the ECB is now responsible for both monetary policy and banking supervision in the framework of the SSM, it must be ensured that monetary policy mandates and instruments are clearly segregated from microprudential supervision and macroprudential oversight. It is important for monetary policy to remain independent of prudential supervisory considerations. This is especially crucial given that, under the existing legal framework, the banking union has complex decision-making structures, making it difficult to establish a clear separation of institutional responsibilities for individual tasks.

Rigorous application of the new rules for dealing with distressed banks could take pressure off other policy areas.

Preferential regulatory treatment of sovereign exposures should be brought to an end

One of the avowed aims of the banking union was to sever the close ties between banks and sover-

eigns. However, it will only partially achieve this objective. Introducing a loss bail-in for banks' shareholders or creditors will lessen the likelihood of public funds being needed. This will not eradicate moral hazard created by banking regulation. This is the point of departure for the chapter entitled "The sovereign-bank nexus". As the European sovereign debt crisis showed, an intensive risk nexus between the financial system and sovereigns represents a systemic risk. Bank distress can create financial burdens which are too big for a sovereign to bear. Conversely, doubts about the sustainability of a country's public finances can weigh on national banks' credit rating.

However, the sovereign-bank nexus is attributable in no small part to the preferential treatment of sovereign exposures by financial sector regulators. This preferential treatment should be abolished in the medium to long term. Sovereign exposures should be backed by adequate own funds, and limits on large exposures should be applied to all of a credit institution's exposure classes. In addition, the liquidity regulations should classify government bonds according to their actual market liquidity.

The preferential treatment of sovereign exposures by regulators should be brought to an end in the medium to long term.

Low interest rates – risks to financial stability?

Low interest rates and an abundant supply of central bank liquidity have mitigated the fallout of the financial and sovereign debt crisis. However, in prolonged phases of low interest rates there is a growing danger that investors will incur greater risks without holding adequate risk buffers. Incentives to take on greater risks are particularly strong for banks and other market participants when they can expect to receive support from public sector entities in the event of distress.

Low risk premiums, favourable non-price terms and conditions for borrowers, high issuance volumes and strong investor demand may all be indications that investors have taken on elevated risks. Measured in terms of these criteria, the signs of a search for yield are most pronounced in the markets for corporate bonds and syndicated loans with poor credit ratings and weak investor protection covenants. The indications are less distinct in other markets.

Signs of the willingness of German banks and insurers to take on risk may be derived from their investment policy as well as from other indicators such as leverage and the assumption of interest rate risks. Banks are still focussing mainly on reducing risks and strengthening the capital base.

In the event of an abrupt turnaround in interest rates or a build-up of geopolitical tensions, asset prices could drop significantly. This, in turn, could have an adverse impact on the German financial system. German banks and insurers need to prepare for these risks.

Low interest rates and low volatility encourage the search for yield

In phases of persistently low interest rates and low volatility on the financial markets, the likelihood increases that investors will take on heightened credit or market risks to earn better yields. The danger of a search for yield by assuming higher levels of risk is currently less strong in the core financial system, which has been at the heart of regulatory reforms since the financial crisis. More stringent regulatory requirements and, in many cases, the continued existence of legacy assets in banks' portfolios are two reasons why German credit institutions' propensity to take on risks is not particularly high on the whole. However, the banks' reticence is likely to encourage borrowers to search more intensively for alternative financing channels. For example, issuance activity in the corporate bond market has increased considerably during the last few years.

Investors are generally free to decide within the scope of their business policy what risks they are prepared to take. The search for yield is an expression of the individual pursuit of profit and is therefore a market economy principle. Investors need to be in a position to adapt to changes in yield levels and the structure of yields by carrying out portfolio shifts, for example.

A higher risk appetite on the part of investors can jeopardise financial stability, however, if central macroeconomic functions of the financial system become impaired. Particularly when investors accept inappropriately low returns

As a general principle, the shareholders and creditors of banks and other financial intermediaries must themselves bear the consequences of excessive risk-taking.

for higher risks and neglect their own risk provision-

ing, the loss potential relative to the capital buffers that are in place rises and the insolvency risk increases. As a general principle, the shareholders and creditors of banks and other financial intermediaries must themselves bear the consequences of excessive risk-taking. The objective of financial stability must not be used as an excuse for not imposing losses on individual classes of shareholders and creditors of a failing bank. Exceptions can only be permitted if the functioning of the system is actually in jeopardy.

Possible effects of an excessive propensity to take risks are that investment capital is misallocated on the financial markets, volatilities fall to unjustified levels and exaggerated price increases ensue.¹ Overvaluations manifest themselves in a decoupling of financial market prices from real economic developments, for example when share prices reflect unrealistically high expectations of enterprises' profit growth or when risk premiums for corporate bonds are not in keeping with the probabilities of default that are actually to be expected. In cases such as these, yields on the financial markets are no longer in line with the situation of the real economy.

Persistently low interest rates and low volatilities can lead to a self-reinforcing spiral of growing risk appetite and a distorted perception of risk on the part of investors on the one hand, and of dwindling risk premiums in the markets on the other. If the situation of low interest rates and volatilities is resolved, this could trigger an abrupt and massive change in asset prices and liquidity conditions, which would consequently impair the functioning of the financial system.

A number of different factors may touch off a change between phases of low and high volatility levels (see the box entitled "Monetary policy, risk appetite and financial stability" on page 18) or between declining and rising risk premiums. In the current situation,

¹ See also C Borio and H Zhu (2012), p 245.

the most likely causes would be heightened geopolitical tensions and an abrupt interest rate reversal. Rising interest rates in the United States are likely to lead to higher rates in the euro area because of the close international linkages between interest rates. The threat of financial market tensions is especially acute when market participants are not sufficiently prepared for the scenario of an abrupt interest rate reversal or growing geopolitical risks.²

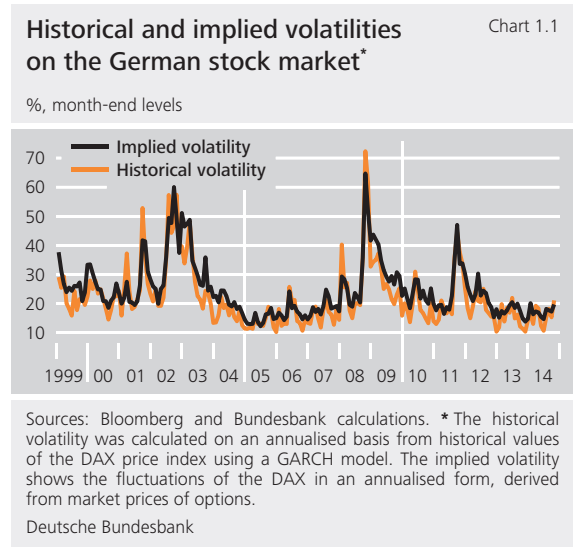
Technical market mechanisms could amplify an increase in interest rates and volatility levels, and possibly even lead to exaggerated market reactions. When volatility is elevated, the risk models of many investors typically signal the need to reduce risks.

Technical market mechanisms could amplify an increase in interest rates and volatility levels, and possibly even lead to exaggerated market reactions.

When such signals occur simultaneously, they may intensify market downswings.³ This is especially true given that banks have scaled back their market-making activities (the quoting of bid and ask prices) on the bond markets. This means that banks have reduced their own risks in this business area. Nevertheless, if tensions and selling pressures were to arise in the markets, there could be fewer market-makers than in previous periods of stress. From the perspective of financial stability it is important that prices in the financial markets correctly reflect such liquidity risks (see the box entitled “Banks’ market-making activities in the bond markets” on page 16). The advance of passive trading strategies, for example through exchange traded funds (ETFs), could tend to reinforce herd behaviour.

Distorted incentives and perceptions could lead to increased risk appetite

When investors take on higher risks and neglect to build up sufficient capital buffers, this is often due to



distorted incentives. The danger of distorted risk perception grows the longer unusually favourable market conditions continue. Investors then increasingly tend to project low interest rates and the rare occurrence of defaults into the future as the normal state of affairs. The underestimation of risks, and thus the underpricing of risks, can be reflected in very slight market price fluctuations (see Chart 1.1). In some segments, such as corporate bonds, strong demand can create an illusion of permanently high liquidity.⁴ Technical methods of risk measurement can point to an excessively high degree of certainty if the models contain data from very calm market phases and the time series used are too short.

However, distorted incentives such as that arising from regulation may likewise heighten the propensity to take on risk.⁵ Banks, insurers and other market participants may feel an incentive to take on higher risks if they can expect support from public-sector

² As early as summer 2013, yields on sovereign bonds rose significantly following indications that a tapering of the Federal Reserve’s quantitative easing programme might become more imminent. Volatility on the stock markets and risk premiums on corporate bonds likewise rose for a time.

³ See T Adrian and H S Shin (2014).

⁴ See Committee on the Global Financial System (2014).

⁵ See B Becker and V Ivashina (2014) and A Cox (1967).

Banks' market-making activities in the bond markets

According to the results of a survey by the Committee on the Global Financial System (CGFS),¹ globally active banks, including German institutions, are to some degree withdrawing from proprietary trading and market-making activities in the bond markets.² Market makers quote buying and selling prices for bonds. If there is an imbalance between supply and demand, market makers can temporarily take bond positions onto their own books and thus ensure liquidity in the markets. The decline in market-making activities is therefore likely to reduce bond market liquidity to some extent, intensifying price movements in periods of stress.

Corporate bond markets, which are generally less liquid, are especially affected by the decline in market-making. Within this segment, banks focus their supply of market-making on those bonds that are traded comparatively frequently. According to the survey, banks' propensity to take less liquid bonds onto their books has decreased. Therefore, during future periods of stress, investors must expect to only be able to sell holdings of bonds with a certain time lag. Furthermore, sales or purchases are likely to have a greater impact on prices. In addition, banks are tending to confine their market-making activities to their most important customers.

The withdrawal of many banks from market-making contrasts with a rising demand for these services. On both the supply and demand sides, a growing concentration is in evidence. Large asset managers are playing an increasingly important role in the bond markets. The survey found that it can sometimes be very difficult to trade larger bond transactions owing to the weak supply of

market-making. Asset managers might consequently be forced to split larger transactions into several parts. This would generally result in a time lag in the execution of transactions besides increasing transaction costs. Such a development can be problematic for bond funds, for example, which promise investors "daily liquidity".

The survey finds the withdrawal of many banks from market-making to be less of a temporary than a structural phenomenon. It is primarily attributed to structural factors such as changes in business and risk models³ and regulatory initiatives, which in some cases are still ongoing. In light of this, as well as considerably scaling back holdings of illiquid bonds, there is also less propensity among market makers to take larger positions onto their own books, even on a short-term basis.

The work of the CGFS indicates that non-banks that could provide liquidity are focusing on trading in liquid and standardised financial products. It is therefore unlikely that non-banks can simply

¹ The CGFS works under the auspices of the Bank for International Settlements (BIS). The BIS and its committees play a key role in fostering global cooperation among central banks and other institutions working in the area of finance.

² The survey, which was conducted between December 2013 and February 2014, comprised not only internationally active banks but also securities traders, pension and hedge funds, asset managers and operators of electronic trading platforms. See Committee on the Global Financial System (2014), *Market-Making and Proprietary Trading – Industry Trends, Drivers and Policy Implications*, forthcoming.

³ The banks participating in the survey stated that their risk tolerance had declined since the financial crisis and that banking regulation had made risk-taking more capital-intensive for banks. Even though derisking at individual banks should be viewed positively, overall this can have a negative impact on aggregate market liquidity. Market participants should therefore factor negative effects on liquidity into their risk assessment.

fill the gap created by the decline in market-making activities. In some cases, large asset managers are attempting to compensate for this by trading among themselves. However, this does not hold much chance of success, as in a crisis situation asset managers would probably tend to be on the same side of the market owing to their similar business models. Multilateral electronic trading platforms, which allow many different market participants to trade with one another, are a more promising option. However, the platforms are currently more suited to standardised bonds and smaller transactions. The bulk of the trade in less liquid and over-the-counter bonds thus still requires banks to act as market makers.

entities in the event of distress. Ongoing regulatory reforms are designed to counter this danger. For example, new bank resolution mechanisms are intended to ensure that, in future, primarily the shareholders and creditors of a bank are held liable for its losses, not the taxpayer. However, moral hazard can continue to exist as long as losses are not borne in their entirety by private investors in the event of resolution.

When investors take on higher risks and neglect to build up sufficient capital buffers, this is often due to distorted incentives.

Moreover, distorted incentives can arise from conflicts of interest between asset managers at financial institutions and lenders (principal-agent problem). This is the case, in particular, when the remuneration and performance measurement of managers encourage a short-term maximisation of profits. For example, investment managers can be said to have a strategy of short-term maximisation of profits if it incentivises them to take on in a relatively opaque

fashion risks which, though they have only a slight probability of occurrence, could lead to high losses in the longer term.⁶ This can be true, for instance, of investments in complex structured products.⁷ Although it is difficult to limit the incurrence of such extreme risks (“tail risks”) by imposing rules on performance-based remuneration, endeavours are underway to curb such behaviour with new regulatory requirements. One of the objectives of such rules is to limit the variable share of remuneration and to gear performance-based pay more closely to the risks incurred.⁸

The propensity to assume higher risks can take different forms. For instance, investors can increase

⁶ See R G Rajan (2006), pp 514 ff.

⁷ See J C Stein (2013).

⁸ Regulatory requirements for remuneration systems exist, in particular, for credit institutions (CRR/CRD IV), insurers (German Insurance Remuneration Regulation, (Versicherungsvergütungsverordnung)) as well as for asset managers (AIFM Directive and, in future, UCITS V Directive). As a general principle, the requirements apply to different categories of staff (eg managers, risk takers and staff with control functions).

Monetary policy, risk appetite and financial stability

In the current environment of low interest rates and an abundant supply of central bank liquidity, the question arises as to what extent the risk appetite of financial market participants is influenced by monetary policy measures.

Using a non-linear vector autoregressive model¹ for the period prior to the global financial crisis, the relationship between monetary policy, production, lending and investors' risk appetite can be analysed.² The latter is reflected in stock market volatility and credit risk premiums.³ It is assumed that low stock market volatility or small credit risk premiums imply a high risk appetite.

Estimation of the underlying model is based on data from 1998 to 2006 for both the United States and the euro area. Industrial production, bank lending, the consumer price index, the policy rate, the credit risk premium and the realised stock market volatility are included in the model.⁴ The estimated equation for the policy rate can be interpreted as the monetary policy rule. Unexpected monetary policy measures are derived using theoretically founded sign restrictions from the error terms of the model equations.

The chart on page 19 shows the impulse-response sequences of various variables in response to an unexpected cut in the policy rate by 100 basis points relative to the baseline scenario. Results are shown for both the euro area and the United States. A distinction is made between a regime with high (blue) and a regime with low (red) stock market volatility.

In the low volatility regime, expansionary monetary policy⁵ leads to an increase in credit vol-

ume and production and to a decline in stock market volatility and the credit risk premium.⁶ The growth in lending and the decrease in the risk premium indicate monetary-policy-induced credit supply effects. Along with the reduced volatility, this suggests a growing propensity to take risk on the part of investors. These responses are much more pronounced during periods of low volatility than during periods of high volatility.

¹ See N Balke (2000), *Credit and Economic Activity: Credit Regimes and Nonlinear Propagation of Shocks*, Review of Economics and Statistics, Vol 82, Issue 2, pp 344-349.

² The analysis is based on S Eickmeier, N Metiu and E Prieto (2014), *Monetary Policy Propagation and Financial Market Volatility*, mimeo. See also G Bekaert, M Hoerova and M Lo Duca (2013), *Risk, Uncertainty and Monetary Policy*, Journal of Monetary Economics, Vol 60, Issue 7, pp 771-788, who conducted a similar study for the United States based on a model with constant parameters.

³ Stock market volatility reflects both general market uncertainty and market participants' risk appetite. See G Bekaert, M Hoerova and M Lo Duca (2013), *Risk, Uncertainty and Monetary Policy*, op cit, pp 771-788.

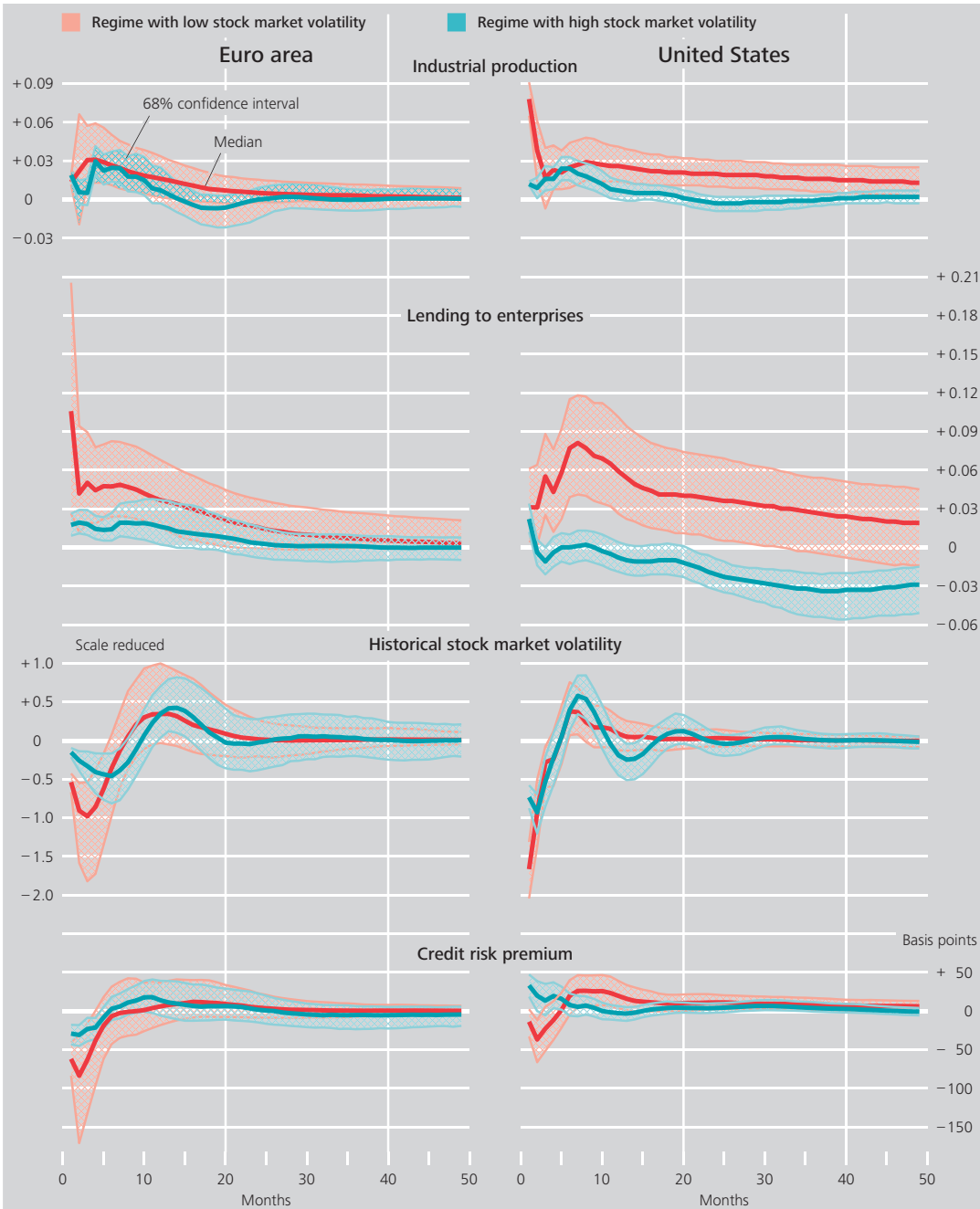
⁴ The policy rate for the euro area is the EONIA and the policy rate for the United States is the federal funds rate. The credit risk premium is the option-adjusted interest rate premium according to data from Merrill Lynch (Moody's Baa-Aaa risk premium). The stock market volatility is based on the EuroStoxx 50 (S&P 500). All data (with the exception of interest rates and risk premiums) enter the model in logarithmic form.

⁵ The analysis refers to the pre-crisis period from 1998 to 2006 and thus to possible reductions in the policy rate in the past.

⁶ Inflation (not shown here) temporarily increases, as implied by the imposed sign restrictions.

Econometric estimation of the impact of an expansionary monetary policy shock* on selected variables

Percentage change



Sources: ECB, Federal Reserve Bank of St Louis, Haver Analytics, Thomson Reuters Datastream and Bundesbank calculations. * Policy rate cut by 100 basis points.

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the share of riskier, less liquid investments in their portfolios. Moreover, they can lend at more favourable conditions and to less creditworthy borrowers, or leverage themselves more heavily.⁹ Banks can engage in maturity transformation – ie obtain finance by borrowing short-term and lending long-term – on a larger scale. Life insurers are under pressure to assume greater market and credit risks in their investment policy on account of their long-term guaranteed returns.¹⁰ However, due to insurers' long-term liabilities, investments in long-term, less liquid assets tend to involve less interest rate and liquidity risk than they do for banks.

Corporate financing is changing

In view of the very favourable financing conditions on the bond markets, medium-sized and large German non-financial corporations have issued considerably more bonds than they did before the crisis. Many enterprises have issued bonds for the first time and are now less dependent on bank loan financing as a result. This advantage could even encourage them to replace some of their bank loans with bonds or other financing instruments such as borrowers' note loans (*Schuldscheindarlehen*) on a permanent basis. An ongoing trend towards disintermediation could create risks if a more bank-independent financing were to make lending by shadow banks more important (see the box entitled "Regulatory arbitrage through credit funds?" on page 22). The extent to which differing legal requirements for banks and shadow banks can present opportunities for regulatory arbitrage needs to be observed very closely.

Moreover, bank loans as a means of funding have lost their relative importance also because between 2000 and 2012, German non-financial corporations increased their equity ratio significantly, from 18.7% to 27.4%, above all through retention of profits. This has heightened enterprises' resilience to crises. However, the European markets for funding, notably for

equity, are so far not fully integrated. If the European capital markets were even more closely interconnected across national borders, opportunities as well as risks could be better distributed. Continuing to remove the remaining obstacles to more closely integrated markets – such as differences in national tax and legal systems – could help to make the financial system more robust.¹¹

If the European capital markets were even more closely interconnected across national borders, opportunities as well as risks could be better distributed.

In the following sections, the extent to which investors' risk appetite has affected individual financial market segments will be examined. Signs of a search for yield may be evident not only from valuation levels but also from non-price terms and conditions or from the growth of the respective segments. The extent to which German market participants have taken on heightened risks will subsequently be assessed. The main yardsticks applied for this purpose are investment policy, investors' leverage ratio and the assumption of interest rate risk.

Varying risk appetite in different markets

Some indicators suggest that investors in the fast-growing markets for corporate bonds and syndicated loans are taking greater risks. The segment for enterprises with poorer credit ratings is growing

⁹ See C M Buch, S Eickmeier and E Prieto (2014), G Jiménez, S Ongena, J-L Peydró and J Saurina (2014), M D Delis and G P Kouretas (2011), A Maddaloni and J-L Peydró (2011) and Bank for International Settlements (2014), pp 34 ff.

¹⁰ See also R G Rajan (2006), p 517, and B Becker and V Ivashina (2014). The current return which measures the interest rate payable to policyholders is at present significantly below the level of yields on 10-year German or French government bonds, for example. See Assekurata (2014), pp 7-8.

¹¹ See also European Commission (2014), chapter 7.

particularly rapidly. In this market, investors can take extreme risks (“tail risks”) in a relatively opaque manner – for example, by granting extremely favourable non-price terms and conditions in investor protection clauses. By contrast, there are fewer indications of increased risk appetite in other financial market segments.

Some indicators suggest that investors in the fast-growing markets for corporate bonds and syndicated loans are taking greater risks.

Where investments are made in complex or new and rapidly expanding financial market segments, there is a danger of risk being underestimated. Between 2007 and 2009, investors took greater risks through new and complex financial products such as securitisations and over-the-counter (OTC) derivatives, which have made it more difficult to measure risk. In some cases, these investments were the result of innovation processes in the financial markets. In others, however, they were developed with the specific aim of circumventing regulation. Care must be taken to ensure that regulation does not give complex or innovative financial instruments preferential treatment.

Care must be taken to ensure that regulation does not give complex or innovative financial instruments preferential treatment.

Against this backdrop, it is important that the regulatory standards which were tightened after the financial crisis are not relaxed again. Regulatory requirements must, for example, keep pace with the desired further integration of capital markets. Likewise, political attempts to improve financing for small and medium-sized enterprises (SMEs) or for long-term investment projects in Europe cannot be allowed to lead to regulatory moral hazard.

No clear indications of significant overvaluation in stock markets

Prices on the international stock markets have risen sharply since the height of the financial crisis in 2008 and 2009. In the United States, prices have even exceeded their pre-crisis level. The DAX 30 price index has also seen strong growth since March 2009, bringing prices much closer to the level of 2007 (see

Valuation metrics on the German and international stock markets show no signs of significant overvaluation.

Chart 1.2).¹² Nonetheless, valuation metrics on the German and international stock markets show no signs of significant overvaluation. For example, the ratio of prices to expected earnings and the ratio of prices to book values for the DAX 30, Euro Stoxx 50 and S&P 500 have not deviated significantly from their longer-term averages since 2005. Likewise, implied equity risk premiums, which are fairly high by historical standards, do not point to any significant overvaluation (see Chart 1.3).¹³

Investors on corporate credit markets particularly willing to take risks

In the markets for corporate bonds and syndicated loans, there are signs of increased risk propensity on the part of investors. The price and non-price terms and conditions for enterprises are extremely favourable. Figures for the issuance of bonds and syndicated loans are at, or close to, their highest-ever levels in both the euro area and the United States.

Demand for investments with poor credit ratings and little investor protection is high in an attempt to maximise earnings.

¹² Unlike the DAX performance index, the DAX price index does not take into account dividend payments.

¹³ The high values for equity risk premiums are partly attributable to the sharp decrease in the risk-free interest rate.

Regulatory arbitrage through credit funds?

Credit funds invest in loans and in securities directly related to lending. In addition, they can originate loans themselves in some countries and thus contribute to credit intermediation via the shadow banking system.

In the current low-interest-rate environment and through ongoing regulation efforts, incentives exist for investors to expand non-traditional investments. The evaluation of various statistics¹ shows that both insurance companies and pension funds are increasingly investing in credit funds in order to diversify their investments.

Insurance companies are particularly interested in loan-originating funds with low leverage. Under the Investment Regulation (*Anlageverordnung*) for insurance companies, these can be reported on the balance sheet in the investment category “participations”. At 35% of the cover assets, a higher investment ratio is permitted in this category than for securitisations (7.5% of the cover assets) and hedge funds (5%), which are also a viable option for credit investments.²

The German Banking Act (*Gesetz über das Kreditwesen*) generally³ prohibits the granting of loans by investment funds set up in Germany. They therefore rely on cooperation with an intermediary bank (fronting bank) to take on the tasks which the German Banking Act prohibits investment funds from performing.

Credit funds are permitted to engage in direct lending in some EU countries, however. As this can reduce transaction costs, European credit funds are predominantly set up in those countries. Due to the EU-wide passive free provision

of services, they can also originate loans to German borrowers if the credit transaction is initiated by the borrower. This may encourage a shift of lending activities to foreign shadow banks.

In view of this situation, steps towards an EU-wide harmonisation of credit fund regulation would be a welcome development in preventing possible regulatory arbitrage. In particular, the requirements for alternative investment funds (AIFM Directive)⁴ should be specified in more detail. For example, the existing guidelines for leverage are very general, with the result that the competent supervisory authorities retain a lot of discretionary leeway.

A more comprehensive picture of credit funds’ leverage will probably emerge in Germany from 2015. Data will be improved through adjustments to investment funds statistics, for example by recording repurchase agreements, and the reporting obligation for closed-end funds.

¹ The calculations are based on investment funds statistics and statistics on securities investments.

² For information on quantitative restrictions, see BaFin’s Investment Regulation of 20 December 2001 (Federal Law Gazette I, p 3913).

³ Limited exceptions to this rule currently exist for German investment funds which are set up under the regulations for European venture capital funds (EuVECA) and European social entrepreneurship funds (EuSEF), as well as with regard to shareholder loans of open-end real estate funds to property companies (section 240 of the Investment Code (Kapitalanlagegesetzbuch)). Lending on a larger scale is likely to be possible in future through the European long-term investment fund (ELTIF).

⁴ See Article 16 of the AIFM Directive in conjunction with Article 49 of the Level 2 Regulation (Delegated Regulation (EU) No 231/2013).

In phases in which many banks are shrinking their balance sheets, investors often turn to other financing channels. However,

Demand for investments with poor credit ratings and weak investor protection covenants is high in an attempt to maximise earnings.

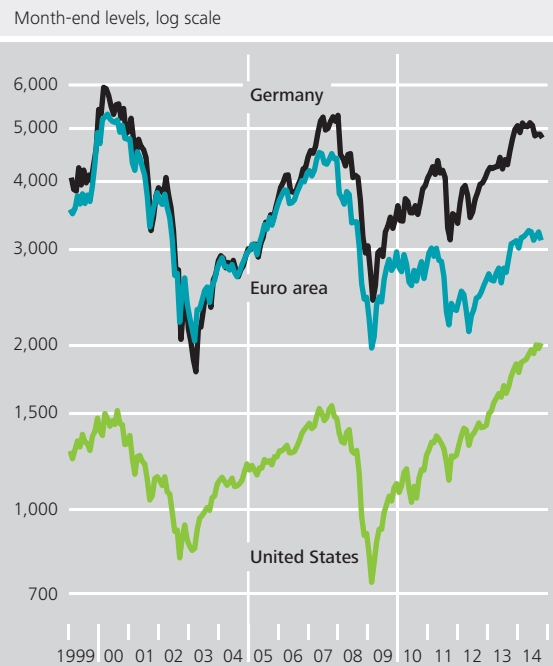
demand for investments with poor credit ratings and weak investor protection covenants is very high in an attempt to maximise earnings, which harbours risks for financial stability. Issuance of non-investment-grade debt is very high worldwide.¹⁴ In the euro area, the volume of hybrid bonds issued by non-financial corporations has reached record highs. The sharp rise in syndicated loans granted to debtors with poor credit ratings (leveraged loans) is especially worrying. From early 2012 to October 2014, the volume increased in the United States to a level far in excess of previous all-time highs. Within this market, rating agencies are reporting a marked jump in the significance of loans with looser investor protection clauses (covenant lite loans).¹⁵ In

In the euro area, the volume of hybrid bonds issued by non-financial corporations has reached record highs.

the course of this year so far, this type of loan has accounted for more than half of all leveraged loans issued. Because these loans have, on average, been issued to enterprises with considerably worse credit ratings than before the financial crisis, this risk of default is high.

The risk of default is particularly high when refinancing is pending. Refinancing risks are greatest between 2017 and 2019, when many of the loans now outstanding will mature. Collateralised loan obligation funds account for a significant share of demand for syndicated loans with poor credit ratings and covenant lite loans, in particular. This year, issuance of this specialised investment vehicle in the United States is close to the record levels of 2006 and 2007.¹⁶

Selected stock indices* Chart 1.2



Source: Bloomberg. * DAX price index for Germany, Euro Stoxx 50 for the euro area and S&P 500 for the United States.
 Deutsche Bundesbank

In the euro area, record numbers of leveraged loans have also been granted since 2013, and the number of covenant lite loans issued thus far in 2014 has already exceeded the previous record level of 2007.¹⁷ However, the market for leveraged loans in the euro area is much smaller than in the United States. According to data provided by Dealogic, the outstand-

¹⁴ A growing proportion of non-investment-grade bond issues is a statistically significant indicator of high valuation and therefore low future yields on corporate bond markets. See R Greenwood and S G Hanson (2013).

¹⁵ See Standard & Poor's (2014).

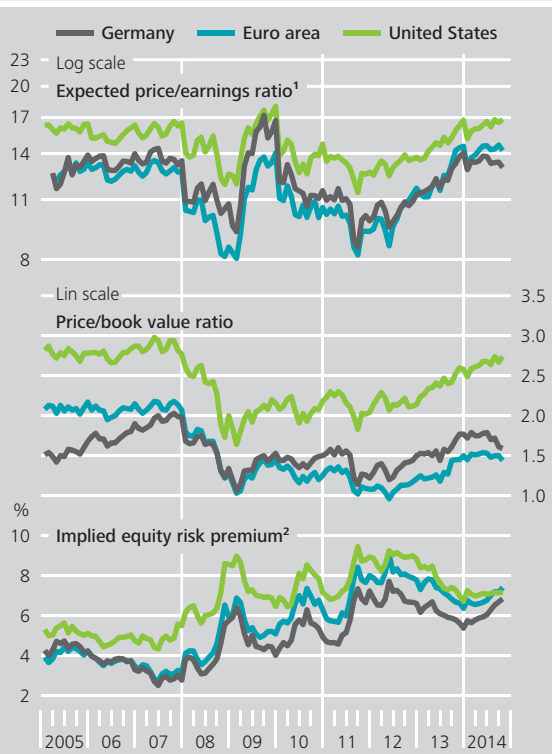
¹⁶ Collateralised loan obligation funds are investment vehicles which purchase corporate loans and repackage and sell them to investors as tranches. Buyers of tranches with a good rating are typically better protected against losses now than they were in the pre-crisis period. Equity tranches, which absorb initial losses from the credit portfolio, are now generally bigger. However, risks for investors have increased on account of the high proportion of covenant lite loans in portfolios.

¹⁷ In the euro area, a relatively high number of non-investment-grade corporate bonds will mature in the period from 2018 to 2020. In the event of market tension, it may be difficult to secure follow-up financing.

Valuation ratios of selected stock indices*

Chart 1.3

Month-end levels



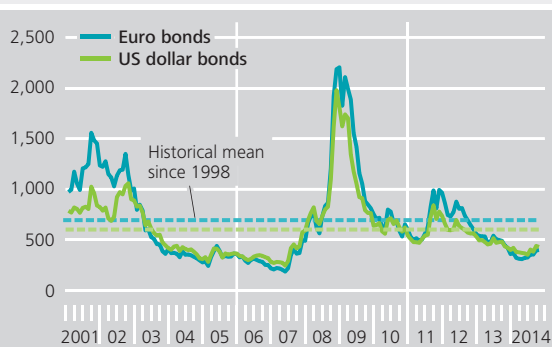
Sources: Bloomberg and Bundesbank calculations. * DAX price index for Germany, Euro Stoxx 50 for the euro area and S&P 500 for the United States. **1** Based on consensus estimates of earnings per share for the next four quarters. **2** Difference between a market-implied yield and the yield on government bonds. The market-implied yield is calculated on the basis of the residual earnings ((return on equity minus cost of equity) × book value of equity in the previous period) and prices taken from stock indices.

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Risk premiums on non-investment-grade corporate bonds

Chart 1.4

Basis points, month-end levels



Source: Bloomberg (Bank of America/Merrill Lynch).

Deutsche Bundesbank

ing volume of leveraged loans in the United States in October 2014 was around US\$1,560 billion (14.1% of GDP) compared with just €289 billion in the euro area (3.0% of GDP). In addition, issues of collateralised loan obligation funds in the euro area are still well below their pre-crisis level.

Since the end of 2008, yields on bonds issued by enterprises with a low credit rating have fallen from highs of 27.4% in the euro area and 22.7% in the United States to lows of 4.1% (June 2014) and 5.6% (December 2013), respectively. Both the yields on government bonds, which are considered safe, and risk premiums on corporate bonds have decreased. Risk premiums are currently below their long-term averages, but above the lows recorded between 2005 and 2007 (see Chart 1.4). According to Bundesbank model calculations,¹⁸ the implied default rates derived from these premiums for the United States, Germany, France, Italy and Spain are below the long-term average for historical default rates. In addition, the risk levels of corporate bonds have become less of a differentiating factor for investors. The spread between risk premiums for enterprises from different euro-area countries and also for investment grade and non-investment grade bonds narrowed considerably in the period from the end of 2012 to October 2014.

Based on model calculations of market-implied default rates and on fundamental developments in the corporate sector, the valuation level for corporate bonds appears to be high. This assessment also takes into account

Based on market-implied default rates and on fundamental developments in the corporate sector, the valuation level for corporate bonds appears to be high.

¹⁸ Implied default rates are calculated from the risk premiums using a model based on an average level of risk aversion for market participants and average liquidity risk premiums. Under the model assumptions, the implied default rates reflect the average default rates anticipated by market participants. For the calculation method, see Rappoport (2001).

the subdued economic outlook in the euro area, in particular. In addition, the leverage ratios of enterprises active in the capital market, especially in the United States and in some euro-area countries, are very high.¹⁹ The proportion of enterprises reporting losses has increased (see Chart 1.5).

Decreasing risk differentiation between sovereigns in the euro area

In the run-up to monetary union and in the first decade of its existence, yield differentials between the sovereign bonds of its member states steadily narrowed. A contributing factor was that investors assumed that macroeconomic risks in the euro area would converge.²⁰ In some countries, expanded funding options on the euro capital markets and lower financing costs promoted a debt accumulation towards levels that proved to be unsustainable.

Macroeconomic imbalances became apparent during the economic and financial crisis. This induced an abrupt increase in risk differentiation. Countries that were hit especially hard by the crisis saw themselves exposed to very high risk premiums. By contrast,

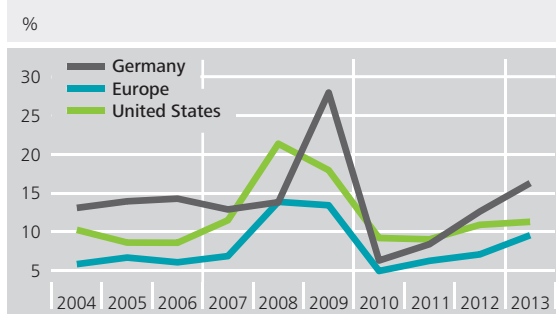
New lows in yields were reached in most of the countries severely affected by the debt crisis.

yields on bonds of issuers regarded as safe fell to all-time lows.²¹ In the summer of 2012, this development went into re-

verse. One particular factor behind the fall in the yield spreads on bonds of the severely crisis-hit countries was the announcement of non-standard monetary policy measures (see Chart 1.6).

The period of heightened risk aversion was accompanied by a change in the composition of creditors.²² Between the end of 2009 and mid-2012, euro-area banks considerably reduced their cross-border sovereign exposures to the countries most affected by the crisis. By contrast, especially in Italy and Spain,

Proportion of non-financial corporations reporting an annual loss for selected stock indices* Chart 1.5



Sources: Bloomberg and Bundesbank calculations. * Non-financial corporations from the HDAX stock index for Germany, Stoxx Europe 600 for Europe and Russell 1000 for the United States.
 Deutsche Bundesbank

domestic banks sharply increased their holdings of domestic government bonds. Long-term refinancing operations (LTROs) by the Eurosystem at the end of 2011 and the beginning of 2012 played a major role in this process.²³ In countries supported by adjustment programmes (Cyprus, Greece, Ireland and Portugal), an increasing share of government debt was transferred to foreign public creditors providing financial support. As a consequence, external loans accounted for a growing percentage of total sovereign debt in these countries.

After being isolated from capital markets for many years in some cases, Cyprus, Greece, Ireland and Portugal were able to place bonds in the first half of 2014. Recently, international funds and investment companies have increased their investment in these

¹⁹ As such, the capacity for shock absorption of enterprises active in the capital market has shrunk. From this perspective, the continuing trend towards increased own funds ratios which has been observed throughout the German non-financial corporate sector since 2000 – including in enterprises which are not active on the capital market – should be viewed in a positive light.

²⁰ See A R Gosh, J D Ostry and M S Qureshi (2013).

²¹ See Deutsche Bundesbank (2011), pp 27-44.

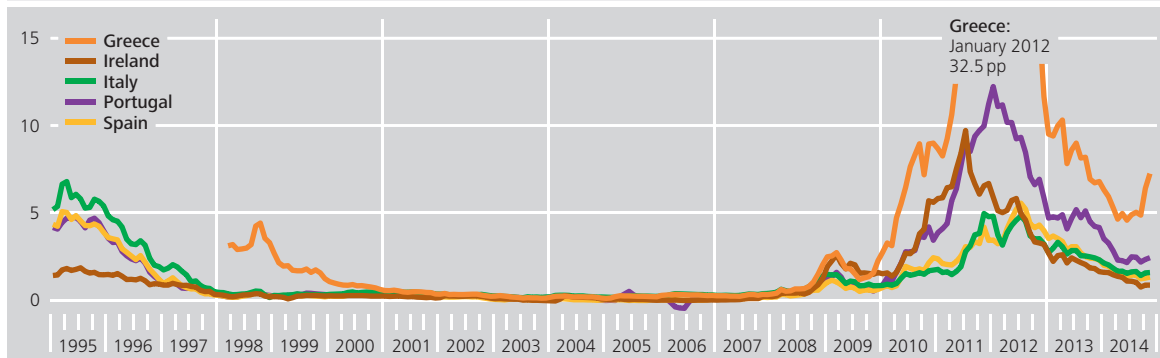
²² For the impact of the creditor structure on sovereign bond yields, see L Jaramillo and Y S Zhang (2013).

²³ See also the chapter entitled “The sovereign-bank nexus”, pp 89-100.

Yield spread of selected sovereign bonds over Bunds*

Chart 1.6

Percentage points, monthly averages



Sources: Bloomberg and Bundesbank calculations. * With a residual maturity of ten years. Up to the end of 1998 or (for Greece) end of 2000, the yield spread comprises not only credit (and liquidity) risk but also exchange rate risk.

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countries. Portfolios of sovereign bonds of the severely crisis-affected countries have been growing again recently – following their sharp decline up to the end of the third quarter of 2012. Against this general trend, German banks further reduced their exposures to these public sectors slightly. New lows in yields were reached in most of the countries severely affected by the debt crisis.

The question arises as to how far this decrease can be attributed to fundamental adjustments in these countries.²⁴ Reforms were indeed implemented in the countries affected by the crisis.²⁵ Nevertheless, the current exceptional situation of extensive central bank support measures suggests that market valuation is not based solely on the progress achieved in reform.²⁶ Further adjustments are needed regarding the implementation of structural reforms and the reduction of high levels of debt in the private and public sectors, for example. It is apparent that countries such as Ireland and Spain, which rapidly implemented fundamental reforms in their banking sectors, are already benefiting from higher economic growth. Achieving the fiscal surpluses over a long period of time that are needed to safeguard debt sustainability in all the countries affected by the crisis will present a major challenge.²⁷ This adjustment

process is benefiting from the lower funding costs in a low-interest-rate setting. The time bought by extensive monetary policy measures should be used at the political level. The reform course agreed and embarked on in the euro area and its member states has to be followed consistently to raise the pace of economic growth and to preserve the regained confidence of market participants.

Search for yield in emerging markets

A marked improvement in the economic fundamentals in many emerging market economies over the past few years, along with efforts to develop local bond markets, have expanded investors' options for accessing this asset class. The markets for corporate bonds in emerging market economies, in particular, have been expe-

The markets for corporate bonds in emerging market economies, in particular, have been experiencing dynamic growth recently.

²⁴ See, for example, International Monetary Fund (2014a).

²⁵ See Deutsche Bundesbank (2014), pp 29-37.

²⁶ See L de Haan, J Hessel and J W van den End (2014).

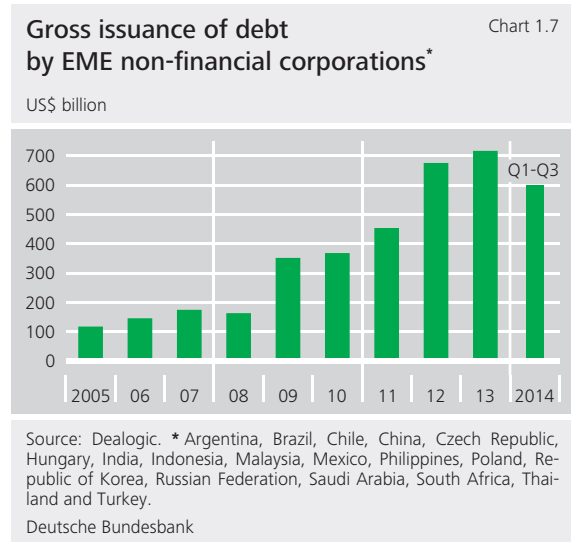
²⁷ See B Eichengreen and U Panizza (2014).

riencing dynamic growth recently. Gross issuance of corporate bonds has more than doubled since 2009 and stood at US\$717 billion in 2013 (see Chart 1.7). The volume of outstanding bonds of the countries under consideration went up from US\$670 billion (5.1% of GDP) in 2007 to US\$3.1 trillion (12.6% of GDP) at the end of the third quarter of 2014.²⁸

Despite a sharp increase in issuing activity, which would actually suggest a rise in risk premiums, corporate bond spreads fell further between the end of 2011 and October 2014. Even though risks for emerging market economies, such as growing macroeconomic imbalances and a weaker growth outlook, have been increasing since mid-2013, these developments do not appear to have been priced into spreads. So far, current geopolitical tensions have led to a moderate rise in risk premiums only in central and eastern Europe. Nevertheless, the risk premiums of US dollar-denominated corporate bonds in emerging markets are, overall, still more than twice as high as their lows of early 2007 (140 basis points).²⁹

If interest rates were to go up in the developed economies, corporate bonds from emerging market economies would become less attractive. Such developments could trigger portfolio shifts leading to a sudden evaporation of market liquidity. The recent sharply increased share of investors with a short-term investment horizon in the financial markets of emerging market economies could further reinforce this development.³⁰

In that case, corporates would be exposed to tighter funding conditions and declining profitability. The increasing share of foreign currency-denominated corporate bonds could lead to additional financial stress for companies. The share of foreign currency in gross new issues in emerging markets (excluding China) rose from 46.6% in 2009 to 55.0% at the end of the third quarter of 2014. Should corporate balance sheets display currency mismatches, liquidity



and loss risks could develop in the event of a depreciation of the domestic currency.

Investment by German banks and insurers fairly conservative

It is possible to gauge whether greater risks are being assumed by looking at investors' investment policy and further indicators such as the leverage ratio and the level of interest rate risk. The danger of too strong a focus on the search for yield in return for higher risk is currently likely to be

The danger of too strong a focus on the search for yield in return for higher risk is currently likely to be lower among banks and insurers than in lightly regulated sectors.

²⁸ The group of emerging market economies under consideration comprises Argentina, Brazil, Chile, China, Czech Republic, Hungary, India, Indonesia, Malaysia, Mexico, Philippines, Poland, Republic of Korea, Russian Federation, Saudi Arabia, South Africa, Thailand and Turkey.

²⁹ These figures are based on the JPMorgan Corporate Emerging Markets Bond Index Global.

³⁰ See C Ebeke and Y Lu (2014) and International Monetary Fund (2014b).

lower among banks and insurers than in lightly regulated sectors.

This appears to be the case for Germany's core financial system. Most German banks are still busy de-risking and building up capital. German insurers are continuing to pursue a relatively conservative investment strategy on the whole, although the proportion of corporate bonds in their portfolios has risen.

Balance sheet adjustments by banks

Encouraged by stricter regulatory requirements, German banks have adjusted their balance sheets over the last two years. They have improved their capital base and shrunk their balance sheets. According to the monetary financial institution (MFI) balance sheet statistics, the balance sheet capital in the German banking system rose from 4.8% of total assets in mid-2012 to 5.8% in December 2013 and to 6% in September 2014. During the same period, total assets were reduced by 10% to €7,798 billion, thus amounting to 270% of GDP. The reduction in total assets was considerably smaller at savings banks and credit cooperatives than at other credit institutions (see Chart 1.8). The ratio of the German banking system's total assets to GDP has recently fallen sharply as a result of the balance sheet cleansing process; in September 2014, it was around the level recorded in 1999. However, this figure was still relatively high compared to the long-term average of 213% since 1970.³¹

Lending developments also show that German banks have tended to de-risk of late. The volume of outstanding loans from German banks to euro-area borrowers dropped from 183% of German GDP in September 2008 to 153% in September 2014. For the euro-area banks as a whole, this figure decreased from 191% to 168% of euro-area GDP. However, adjustment was uneven across countries.

Cross-border claims, in particular, placed heavy burdens on German banks during the financial crisis. Since then, German institutions have significantly reduced their risks in this area, too. Since the collapse of the investment bank Lehman Brothers in 2008, German banks' cross-border claims have decreased significantly. Claims on the euro-area countries particularly affected by the debt crisis have fallen sharply, while claims on other countries in the euro area have changed only slightly. Claims on European countries outside the euro area and on the United States have also declined. Claims against emerging market economies play a relatively minor role (see Chart 1.9).³²

Since the collapse of the investment bank Lehman Brothers in 2008, German banks' cross-border claims have decreased significantly.

At the same time, banks in Germany have stepped up their investment in individual market segments. Holdings of corporate bonds and equities, in particular, have grown after reaching interim lows in both segments in mid-2012. Between June 2012 and September 2014, holdings of corporate bonds climbed by 33% to reach €53 billion, while equity holdings, starting from a low level, grew by 290% to €54 billion during this period (see Chart 1.10)³³. Holdings of corporate bonds and equities currently account for 11% and 12% of the equity capital respectively, or 0.7% of total assets each. However, holdings of corporate bonds and equities still remain well below their pre-crisis highs.

³¹ For more information about the capitalisation and assets of the 12 major German banks with an international focus, see the chapter entitled "Risk situation in the German financial system", pp 35-56.

³² German banks' claims on China only account for around 14.5% of the total claims on emerging market economies at present.

³³ The amounts are derived from the totals of the observed sub-aggregates. Unlike banks in Germany, data for securities held through foreign branches of German banks indicate that holdings of bonds issued by non-financial corporations and equities have fallen there.

Banks in Germany have increased their holdings of government bonds since the outbreak of the financial crisis. However, this development was driven by strong growth in domestic government bonds. In addition, German banks took greater risks during the prolonged period of low interest rates by increasing the interest rate lock-in period of their assets.³⁴

Insurers step up investment in corporate bonds

The prolonged period of low interest rates poses a challenge to German insurers in terms of their investment policy. Life insurers, in particular, are under pressure to generate sufficient returns to fulfil their long-term guarantee commitments despite low rates of return on safe assets. Until now, insurers have acted on this incentive to take greater risks only to a limited extent. Furthermore, the Solvency II regime, which is scheduled to come into effect in 2016, is looming on the horizon. Unlike under the provisions currently in force, investment risk will have to be reported precisely and sufficiently covered by own funds. Insurers therefore have an incentive not to increase their investment risk too significantly. On the whole, insurers' investment policy, which focuses on high quality, fixed-rate debt securities, may still be described as conservative.³⁵

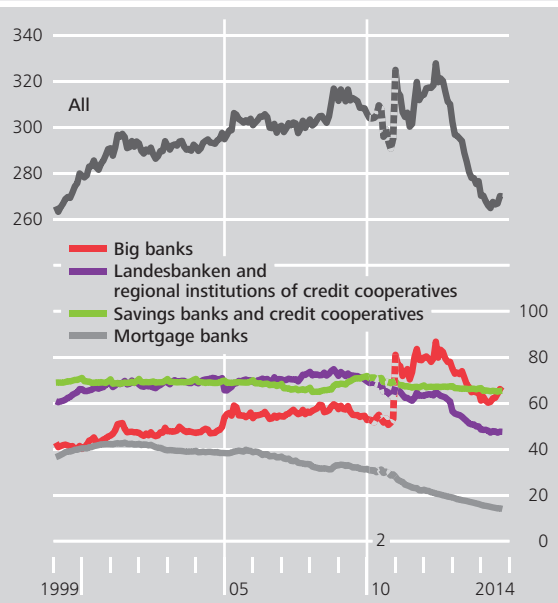
³⁴ For more detailed information about interest rate risk, see the chapter entitled "Risk situation in the German financial system" on pp 35-56.

³⁵ According to statistics collected by BaFin, as at 30 June 2014, directly held debt securities, Pfandbriefe and municipal bonds accounted for around 32% of the total capital investment of primary insurance companies. The majority of the stocks held indirectly through mutual funds also include fixed-income securities. The risk asset ratio – ie the proportion of investments explicitly categorised as high-risk from a regulatory perspective – of the primary insurance companies remained practically unchanged at 11.3% in 2013, which is far below the threshold of 35% of the guarantee assets permitted by regulators. Pursuant to the Investment Regulation (Anlageverordnung), risky investments include directly and indirectly held investment shares, participation rights and receivables due from subordinated liabilities, non-investment-grade bonds, investments with defaults, investments involving commodity risks and certain types of mutual fund investment. For further details, see BaFin (2014).

Total assets of selected German banking groups

Chart 1.8

As a percentage of GDP,¹ monthly data

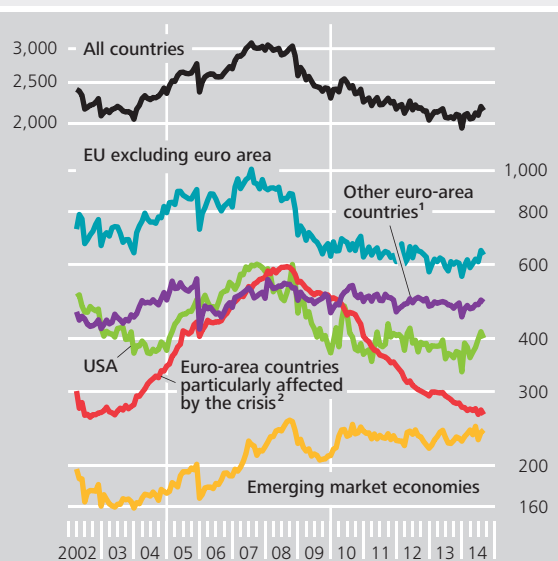


¹ Annualised quarterly data. ² Transitional period pursuant to the Act Modernising Accounting Law (Bilanzrechtsmodernisierungsgesetz). Deutsche Bundesbank

Cross-border claims of German banks*

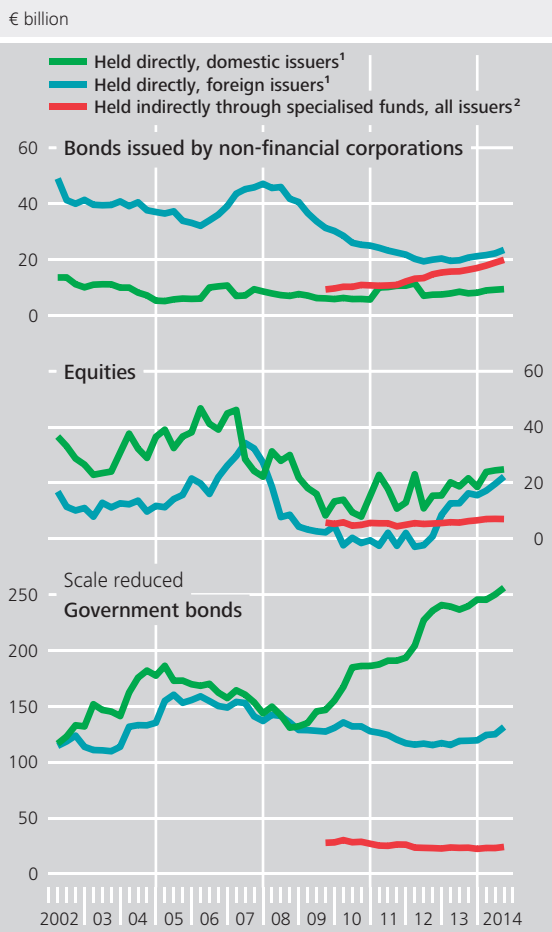
Chart 1.9

€ billion, monthly data, log scale



* As defined in the consolidated banking statistics of the Bank for International Settlements (including foreign branches and subsidiaries). ¹ All euro-area countries except the countries particularly affected by the crisis. ² Cyprus, Greece, Ireland, Italy, Portugal and Spain. Deutsche Bundesbank

Securities held by banks in Germany Chart 1.10



1 As reported in financial statements. 2 Market values.
 Deutsche Bundesbank

during the same period, which corresponds to an increase of around 40% in absolute holdings.

The ratings in the fixed income portfolios held by German life insurers have deteriorated. For example, the proportion of securities with the top rating of AAA fell from 44.8% to 35.6% between 2011 and 2013, while at the same time, the proportion of securities with a BBB rating, ie the lowest investment grade rating, rose from 7.1% to 12.8% (see Chart 1.11).³⁸ This development is at least partly due to ratings downgrades of major euro-area countries and of individual securities in 2012. In 2013, although the ratings were largely more stable, the proportion of BBB-rated securities in the portfolio increased slightly. However, the weight of AAA-rated securities has also gone back up somewhat.

The ratings in the fixed income portfolios held by German life insurers have deteriorated.

According to a special survey by BaFin, German insurance groups have stepped up their investment in the four euro-area programme countries as well as in Italy and Spain by 7.9% since the end of the third quarter of 2013.³⁹ Exposures to the German government have fallen somewhat, while slightly higher interest-bearing claims on other governments with a rating of AAA or AA, such as France, Austria and the Netherlands, have risen.

Nonetheless, there is some evidence that appetite for risk is growing gradually. Despite low risk premiums, German insurers

German insurers increased the share of corporate bonds in their investment portfolio from 4.3% in 2011 to 6.9% in mid-2014.

increased the share of corporate bonds in their investment portfolio from 4.3% in 2011 to 6.9% in mid-2014. Their absolute holdings nearly doubled from €55 billion to €99 billion.³⁶ The relevant proportion of listed shares³⁷ rose from 2.7% to 3.5%

doubled from €55 billion to €99 billion.³⁶ The relevant proportion of listed shares³⁷ rose from 2.7% to 3.5%

³⁶ These figures include corporate bonds held both directly and indirectly through specialised funds.
³⁷ The figures are based on book values. Indirect holdings also include participation rights.
³⁸ Bundesbank calculations based on Assekurata (2014), p 4. An evaluation of the annual reports of the largest insurance groups in the euro area confirms this finding. Among these groups, holdings of AAA-rated securities even fell from 39.4% to 21.0% in the same period. The ten insurers selected account for around 44% of the total investment by insurers in the euro area.
³⁹ These data are based on the growth of the nominal values. Using fair values, it is also possible to provide data on investment rates. The survey groups' investment in the four programme countries as well as in Italy and Spain has risen from 8.3% to 9.0% of their total investment since the third quarter of 2013.

A correction in the financial markets could create burdens for insurers owing to their increased appetite for risk.⁴⁰ This applies to the corporate bond sector, in particular.⁴¹

Mutual fund developments reflect higher appetite for risk

Net capital inflows to mutual funds with a focus on non-investment-grade corporate bonds and on equities have risen worldwide since mid-2012. German equity funds have also recorded substantial net capital inflows over the last two years. However, in mid-2014, amid increasing geopolitical tensions, there were strong net outflows, especially for funds containing non-investment-grade corporate bonds. With regard to mutual fund investments in the relatively illiquid corporate bond market, investors have a large incentive to withdraw their funds quickly during periods of stress so as to avoid potentially higher losses later on. Prices may therefore fall more sharply during periods of stress. This is a particular problem if investors are not fully aware of this risk and do not retain a sufficient capital buffer to protect against a sharp drop in prices. Furthermore, there is a risk of spillovers to other markets. If investors submit redemption requests, fund managers can try to minimise their price losses by selling off, first of all, assets that are more liquid. Although the pressure to sell would then ease slightly on the corporate bond market, it would increase in other, previously unaffected markets.

A sign of investors' growing appetite for risk is the rising demand for alternative types of investments such as hedge fund or credit fund investments (see the box entitled "Regulatory arbitrage through credit funds?" on page 22). Hedge

Hedge funds, in particular, which – unlike traditional mutual funds – are highly leveraged by credit financing and the use of derivatives, are recording large net inflows.



funds, in particular, which – unlike traditional mutual funds – are highly leveraged by credit financing and the use of derivatives, are recording large net inflows. Investors have primarily been channelling money into the particularly large hedge funds, causing concentration in this sector, which was already high, to increase further. At the beginning of 2014, the 100 largest hedge funds, which account for

⁴⁰ An interest rate reversal would benefit life insurers first and foremost, because their liabilities generally have longer maturities than their assets. However, a correction in the markets would be accompanied by losses due to falling prices, widening risk premiums and potentially also defaults. See also P Antolin, S Schich and J Yermo (2011).

⁴¹ For more information about life insurers' resilience during the prolonged period of low interest rates and in the event of a short-term hike in interest rates, see the chapter entitled "Risk situation in the German financial system", pp 35-56.

around 1% of all hedge funds, handled around 56% of the assets managed by the industry as a whole.⁴²

Furthermore, in Eurosystem surveys on credit conditions in the markets for euro-denominated securities financing and OTC derivatives, banks reported that hedge funds had increased their leverage in 2013 and 2014.⁴³ According to the information provided by the banks in these surveys, hedge funds have increasingly tried to negotiate better credit conditions. The higher concentration and a greater use of leverage in the industry have increased the risk that sales of securities by hedge funds will cause prices to drop more sharply during correction periods in the markets.

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⁴² However, the level of concentration is also high in other areas of the financial sector. For example, the ten largest banks in the world accounted for 19% of the assets of the global banking sector. See Financial Stability Board (2013).

⁴³ Large hedge funds, in particular, appear to make use of a significant amount of leverage. See Financial Conduct Authority (2014), p 16.

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Risk situation in the German financial system

German banks, particularly the major institutions with an international focus, have raised large amounts of fresh capital in recent months. The comprehensive assessment carried out by the European Central Bank (ECB) showed that the balance sheets of the 25 participating German institutions are sound and that these banks are robust enough to withstand a simulated severe economic shock. Only one German bank was found to have a capital shortfall as at 31 December 2013, which it has already remedied by raising capital this year.

The German banks' leverage has decreased but remains high, and falling income remains a dominant feature of the German banking system. Long-horizon stress tests performed for smaller banks by the Bundesbank show that, above all, the scenario of a sharp, abrupt rise in short-term interest rates following a phase of low interest rates would leave a considerable dent in profit and loss accounts. This would become problematical for financial stability if the situation were compounded by other unfavourable events. Banks must therefore ensure that they have adequate capital buffers which would not only enable them to withstand an isolated interest rate shock but also equip them for scenarios in which several risks materialise concurrently.

A prolonged period of low interest rates would also have negative repercussions for life insurers in view of their long-term guaranteed returns. While the Life Insurance Reform Act (Lebensversicherungsreformgesetz), which came into force in August 2014, has strengthened resilience, Bundesbank analyses show that an abrupt, sharp rise in capital market rates could also have a destabilising influence on life insurers. While higher interest rates would, per se, help to improve life insurers' solvency in the long run, this effect could be countered by policyholders increasingly terminating their contracts in favour of more attractive alternative investments. It is therefore necessary for life insurers, too, to improve their solvency position on a lasting basis.

Low-interest-rate environment and structural problems weighing on profitability

Operating income for the group of 11 major German banks with an international focus¹ stood at €31.8 billion in the first half of 2014 and was thus

In the first half of 2014, operating income for the 11 major German banks with an international focus was approximately 8% down on the year.

approximately 8% down on the year (see Chart 2.1). The main reason for this was a decline in net interest income (down 5% on the first half of 2013), which is the most important source of in-

come for German banks. Net trading income fell significantly (by 30%), while net fee and commission income remained almost unchanged (+1%). A sharp fall of 63% in risk provisioning from an already low level buoyed up the result for the first half of 2014 substantially. However, this is likely to stabilise income only in the short term, being largely the result of exceptional factors. Should the economic outlook deteriorate, moreover, banks might well need to increase their risk provisioning again, which would put additional pressure on profitability.

Based on IFRS group reporting, the return on equity achieved by the major German banks with an international focus stood at 4.0% in 2013; based on single-entity reporting using German accounting standards pursuant to the German Commercial Code (*Handelsgesetzbuch*), it was as low as 2.4%. The return on equity for this group of institutions was thus significantly lower than for savings banks (10.6%) and credit cooperatives (14.8%).²

Low-interest-rate environment a growing burden

The low-interest-rate environment is a growing burden on the profitability of German banks.³ In low-interest-rate phases, the net interest margin⁴ tends to fall. This squeezes net interest income. Until now, the effects of low in-

terest rates on aggregate profitability have remained limited. Net interest income is largely stable, as sav-

Net interest income coming under pressure as low-interest-rate phase wears on.

ings banks and credit cooperatives are benefiting from volume growth in lending business. The comparatively steep yield curve has also bolstered profitability, especially for savings banks and credit cooperatives. In addition, banks are still profiting from the fact that they granted higher-interest loans before the onset of the financial crisis. As the low-interest-rate phase wears on, these loans are maturing and have to be rolled over by lower-yielding loans, thus putting additional pressure on net interest income. This problem is compounded by the fact that banks are unable to offset falling lending rates by further reducing deposit rates, as they are already close to zero at many institutions, and banks wish to avoid imposing negative deposit rates, at least for retail investors, without a very good reason (see also

¹ In general, the analysis in the Financial Stability Review looks at a group of 12 major German banks with an international focus. As intra-year data based on the International Financial Reporting Standards (IFRS) are no longer available for one of the institutions in this group, the analysis of operating income is confined to the other 11 institutions in the reporting sample. In mid-2014, the group of 12 institutions analysed elsewhere in this article accounted for around 58% of the total assets of all German banks. In the 2010 Financial Stability Review, this group consisted of 15 credit institutions.

² See Deutsche Bundesbank (2014c), p 73. Exceptional factors such as the liquidation of reserves for general banking risks held under section 340f of the German Commercial Code, which distorted profits and return on equity in the preceding years, declined considerably in 2013.

³ See also the chapter entitled "Low interest rates – risks to financial stability?" on pp 13-34.

⁴ The net interest margin is the ratio of net interest income to total assets.

the section entitled “Banks’ interest rate risk could perceptibly impair their profitability” on page 44). Chart 2.2 highlights a negative long-term trend in the net interest margin, affecting the major banks

Negative long-term trend in the net interest margin.

and the Landesbanken in particular. Especially for savings banks and credit cooperatives, the profit for the year was buoyed up by exceptional factors, which cushioned the impact of the low-interest-rate environment on these institutions.⁵

Banks might incur greater risks

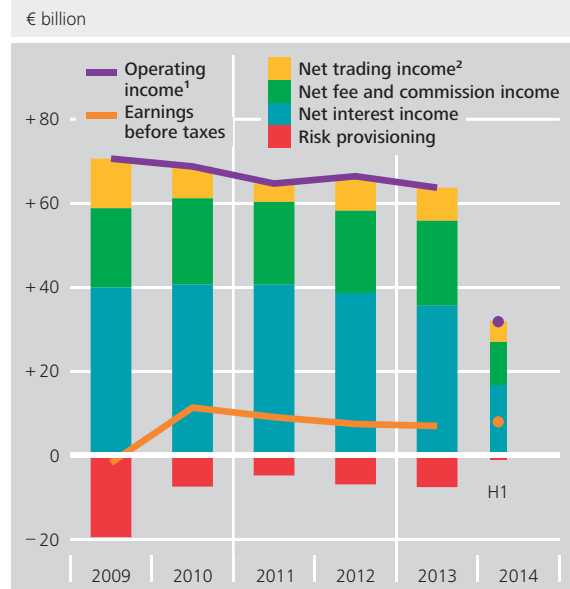
There is a danger that some institutions, primarily those with weak earnings, might incur greater risks if low interest rates persist. This is particularly true of savings banks and credit cooperatives, which are heavily reliant on net interest income. The findings of

Some institutions, primarily those with weak earnings, might incur greater risks if low interest rates persist.

one Bundesbank study indicate that banks are attempting to offset the lower contribution of the net interest margin to their earnings by achieving a higher contribution from term transformation.⁶ *Ceteris paribus*, the net interest margin should widen if a bank takes on more interest rate risk. Viewed over a cross-section of the banks, however, there does not appear to be a strong relationship between interest rate risk and the net interest margin. One possible explanation for this is that banks with high interest rate risk take on less credit risk. The banks appear to balance the mix of the various risks they incur such that their overall risk⁷ remains broadly the same. If a bank is unable to issue enough loans with adequate spreads, it could opt to take on additional interest rate risk, as the past pattern of interest rate risk over time would suggest. The Basel coefficient, a measure of pres-

ent-value interest rate risk, rose on average from 16.5% in the fourth quarter of 2011 to 18.6% in the second quarter of 2014.⁸ Banks with a Basel coefficient of more than 20% (see Chart 2.3) – ie banks

Profit components of selected banks* Chart 2.1



Sources: corporate data and Bundesbank calculations. * Comprises IFRS data of 11 of the 12 major German banks with an international focus which did not transfer positions to resolution agencies in the observation period. ¹ Sum of net interest income, net fee and commission income and net trading income. ² Including income from financial assets carried at fair value.
 Deutsche Bundesbank

ent-value interest rate risk, rose on average from 16.5% in the fourth quarter of 2011 to 18.6% in the second quarter of 2014.⁸ Banks with a Basel coefficient of more than 20% (see Chart 2.3) – ie banks

⁵ See Deutsche Bundesbank (2014c), p 74.

⁶ The net interest margin contribution is derived from the margin between the customer operation and an alternative (safe) money and capital market operation with the same maturity and payment structure. The term transformation contribution reflects earnings from term transformation; see C Memmel (2011).

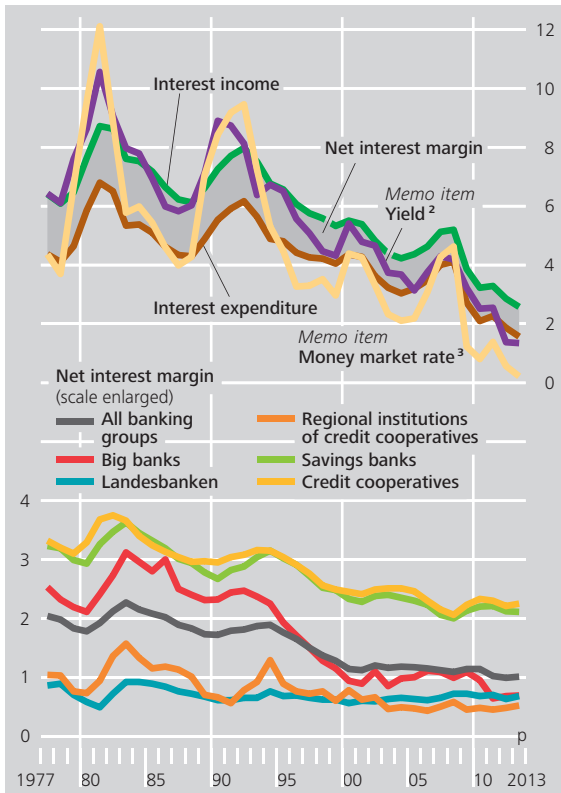
⁷ The overall risk comprises credit risk and market risk. For smaller banks, interest rate risk is the main component of market risk. There are also other risks, such as operational risk.

⁸ These calculations are based on the amended Circular 11/2011 (BA) on the prudential treatment of interest rate risk in the non-trading book. Two scenarios are observed: an upward parallel shift of 200 basis points in the yield curve (scenario 1) and a downward parallel shift of 200 basis points in the yield curve (scenario 2). The calculation includes only those institutions for which a negative change in the risk contribution is recorded in at least one of the two scenarios. If both figures are negative, the larger figure is used. In almost all cases the smaller figure is recorded for scenario 1; consequently, the results can be viewed as an approximation of the scenario of an upward parallel shift of 200 basis points in the yield curve.

Interest income and interest expenditure of banks in Germany

Chart 2.2

As a percentage of average total assets¹



¹ Up to and including 1998, as a percentage of average business volume. In 2011, aggregate total assets increased by around 10% in accounting terms as a result of the Act Modernising Accounting Law (Bilanzrechtsmodernisierungsgesetz). ² Average yield on domestic bearer bonds outstanding. ³ Three-month EURIBOR. Up to and including 1998, three-month money market rate in Frankfurt.

Deutsche Bundesbank

cific component, credit risks can balance each other out over a cross-section of banks, whereas interest rate risk impacts on the results of many banks at the same time, meaning that little or no risk dispersion across banks is possible.

The high co-movement of interest rate risk over a cross-section of banks is a potential burden on financial stability.

It is therefore all the more important that banks implement adequate risk provisioning geared to the prevailing economic setting, and that they retain profits even if their income is low. Profit retention is particularly important for the savings banks and credit cooperatives, as that is the main method they use to strengthen their capital base.

The net interest margin has narrowed over time. Banks' earnings have thus come under pressure. They could counteract this by increasing their cost-efficiency. In addition, further consolidation may be appropriate, above all for smaller institutions. It is likely that small banks, in particular, would benefit from such consolidation, as they probably harbour the greatest cost-cutting potential.

Heavy reliance on interest income

To compensate for falling profits from interest business and generally reduce their reliance on interest income, savings banks and credit cooperatives could better diversify their income and expand their non-interest income. The latter mainly comprises net fee and commission income, as Table 2.1 illustrates.

For savings banks and credit cooperatives, in particular, empirical findings point to the benefits of greater income diversification,

Empirical findings suggest that banks benefit from greater income diversification.

which would suffer present-value losses in the non-trading book of more than 20% of their own funds given an interest rate rise of 200 basis points – are categorised as institutions with elevated interest rate risk. The percentage of institutions above this threshold increased from 28% to 44% in the period under observation, which also illustrates that banks took on additional interest rate risk in this period.

The high co-movement of interest rate risk over a cross-section of banks is a potential burden on financial stability. Credit risk is the most significant type of risk for most banks but, given their large bank-spe-

such as a smoothing of income fluctuation.⁹ However, there is empirical evidence that the earnings of banks which are more heavily engaged in capital market operations become more sustainable if they expand their interest business. Unlike savings banks and credit cooperatives, these institutions are much more reliant on other types of income. In addition, their non-interest income is considerably more volatile.

■ Improvement in banks' resilience

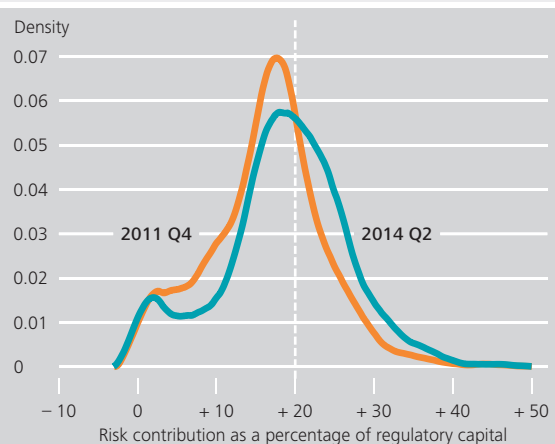
The resilience of the 12 major German banks with an international focus has improved in recent years. The

The new capital standards for banks have imposed stricter recognition and valuation requirements, resulting in lower tier 1 capital positions and higher risk-weighted assets.

tier 1 capital ratio – the most important measure of resilience – has actually fallen slightly of late. It stood at 14.3% in mid-2014, and was thus just under 1 percentage point below the figure recorded in mid-2013

(see Chart 2.4). However, this decline must be viewed in the light of the changed prudential regulations governing the calculation of regulatory metrics. The Capital Requirements Regulation (CRR) and the Fourth Capital Requirements Directive (CRD IV) came into force on 1 January 2014.¹⁰ They transpose the Basel III regime in the EU. The new capital standards for banks will come into force progressively by 2021. CRD IV and CRR have imposed stricter recognition and valuation requirements, resulting in lower tier 1 capital positions and higher risk-weighted assets. As a result of these methodological changes, the actual improvement in resilience is not reflected in higher tier 1 capital ratios (see also the box entitled "Impact

Kernel density functions for the risk contribution of interest rate risk in non-trading business as a percentage of regulatory capital for the German banking system* Chart 2.3



* A parallel shift of ± 200 basis points in the yield curve was simulated. The (present value) impact was calculated on the basis of all material non-trading book positions which carry interest rate risk. An Epanechnikov kernel with a data-driven automatic bandwidth selection (Silverman method) was used to estimate the kernel density function.
 Deutsche Bundesbank

Profit components of selected banking groups* Table 2.1

As a percentage of total income, mean values from 1995 to 2012

Item	Big banks	Landesbanken	Regional institutions of credit cooperatives	Savings banks	Credit cooperatives
Net interest income	57	78	63	80	77
Non-interest income	43	22	37	20	23
as a percentage of non-interest income					
Net fee and commission income	68	56	47	92	81
Net trading income	27	25	47	3	1
Net other operating income or charges	5	19	6	5	18

* Excluding risk provisioning and administrative costs in the profit and loss account.

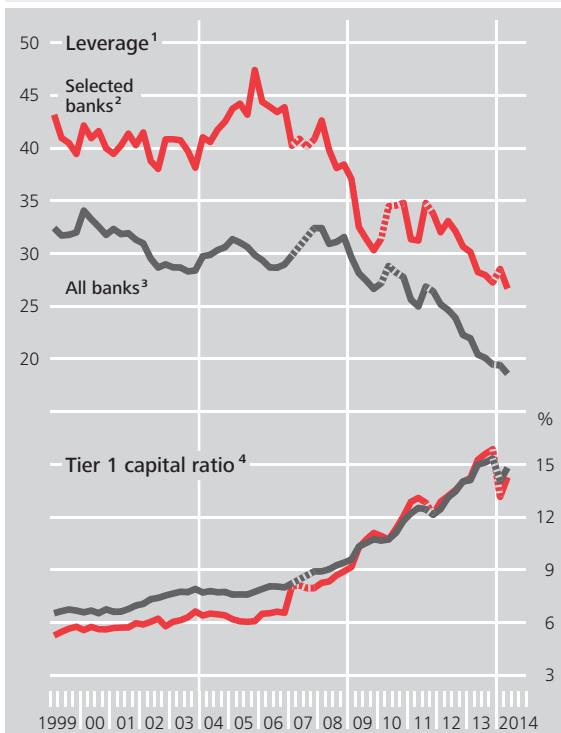
Deutsche Bundesbank

⁹ See M Köhler (2014a) and (2014b).

¹⁰ See European Parliament and Council (2013a and 2013b).

Leverage and tier 1 capital ratio of banks in Germany*

Chart 2.4



* Revised valuations of tier 1 capital and risk-weighted assets apply as of 2007, 2011 and 2014 due to the EU Capital Requirements Directives CRD II, CRD III and CRD IV respectively. **1** Total assets as a multiple of tier 1 capital; 2010: transition period pursuant to the Act Modernising Accounting Law (Bilanzrechtsmodernisierungsgesetz). **2** The analysis covers 12 major German banks with an international focus that did not transfer positions to resolution agencies in the observation period. **3** Linear interpolation of leverage and tier 1 capital ratio in 2007. **4** Tier 1 capital in relation to risk-weighted assets.
 Deutsche Bundesbank

of regulatory changes on the tier 1 capital ratio” on page 41).

To prepare for the implementation of the Basel III regime, 11 of the 12 major German banks with an international focus have in recent years already provided additional reporting in accordance with the future rules. Based on these reports, it is possible to obtain tier 1 capital ratios that are comparable over time for this subgroup of 12 major banks. Under the regulations in force on the respective reporting dates, the tier 1 capital ratio for the 11 banks stood at 13.7% in mid-2014, compared with 14.9% a year

earlier. The impact of the methodological changes on the tier 1 capital ratio *per se* is large; without those changes, the tier 1 capital ratio would have amounted to 17.1% in mid-2014. Similarly, without any methodological changes, the leverage measure would have stood at 24.7 in mid-2014, compared with 27.7 using the changed method.

At 13.5% and 13.7%, respectively, the tier 1 capital ratios for credit cooperatives and savings banks in mid-2014 were distinctly lower than for the subgroup of major banks.¹¹ However, the difference between the tier 1 capital ratio of the 12 major banks and those of the savings banks and credit cooperatives has narrowed year on year. In mid-2013, the difference still amounted to just under 2 percentage points for savings banks (tier 1 capital ratio: 13.3%) and just over 3 percentage points for credit cooperatives (tier 1 capital ratio: 12.1%).

Fresh capital raised

Under the new prudential rules, the tier 1 capital of the 12 institutions stood at around €173 billion in mid-2014,¹² and was thus just over €0.2 billion up on the year. But here, too, it is important to draw a distinction between

The major German banks have raised fresh capital and retained profits.

methodological and economic changes. The stricter recognition requirements alone would have reduced the calculated tier 1 capital. At the same time, however, the banks also raised fresh capital (+€11.5 billion) and strengthened their capital base through profit retention and changes in revaluation reserves (+€2.5 billion). Under prudential regulations, this

¹¹ They additionally have hidden reserves, however.
¹² The tier 1 capital of these 12 banks thus accounts for 40% of the tier 1 capital of all German banks.

Impact of regulatory changes on the tier 1 capital ratio

The tier 1 capital ratio is a key measure of the banking system's resilience. The introduction of the Capital Requirements Regulation (CRR) and the Fourth Capital Requirements Directive (CRD IV) on 1 January 2014 has had a significant impact on the way in which tier 1 capital and risk-weighted assets (RWA) are calculated. Due to these methodological changes, tier 1 capital ratios calculated up to the end of 2013 are not directly comparable with those calculated from the start of 2014 onwards. The impact of the methodological changes needs to be factored out of the calculation so that meaningful comparisons can be drawn. In this context, it is necessary to look at the effects on the tier 1 capital ratio arising from changes in the numerator (tier 1 capital) and denominator (RWA) separately.¹

The table shows that the impact of the methodological changes on the tier 1 capital ratio is substantial. The resulting fall in the tier 1 capital ratio² by 3.4 percentage points (-1.4 percentage points attributable to the tier 1 capital effect and -2.0 percentage points to the RWA effect) overshadowed the positive impact of an improved risk profile that increased the ratio by 2.2 percentage points (+1.4 percentage points attributable to the tier 1 capital effect and +0.8 percentage point to the RWA effect). Overall, this caused the tier 1 capital ratio of the banks under consideration to drop from 14.9% in June 2013 to 13.7% in June 2014.

Decomposition of changes in selected banks' tier 1 capital ratio

Tier 1 capital ratio (%), changes in percentage points

Tier 1 capital ratio as at June 2013	14.9
Tier 1 capital effect	+ 0.0
Risk profile change	+ 1.4
Methodology change	- 1.4
RWA ¹ effect	- 1.2
Risk profile change	+ 0.8
Methodology change	- 2.0
Overall change in tier 1 capital ratio	- 1.2
Risk profile change	+ 2.2
Methodology change	- 3.4
Tier 1 capital ratio as at June 2014	13.7

* The analysis covers the mean values of 11 of the 12 major German banks with an international focus which did not transfer positions to resolution agencies in the observation period. The risk profile relates to the level of tier 1 capital and risk-weighted assets, which have been adjusted for effects arising from the overhaul of the regulatory framework (implementation of the EU Capital Requirements Directive (CRD IV)). ¹ Risk-weighted assets.

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¹ The change in the tier 1 capital ratio is decomposed as follows: $\Delta CR/CR = \Delta C/C - \Delta RWA/RWA$. This equation yields approximate results only. However, the associated approximation error is low. Changes in the numerator and denominator are then decomposed into two components. The first component compares the previous year's figure with the current figure on the basis of the new regulation (CRD IV). The second represents the change in the previous year's figure owing to the methodological changes.

$$\begin{aligned} \Delta C &= C(\text{CRD IV}; Q214) - C(\text{CRD III}; Q213) \\ &= [C(\text{CRD IV}; Q214) - C(\text{CRD IV}; Q213)] \\ &\quad + [C(\text{CRD IV}; Q213) - C(\text{CRD III}; Q213)] \end{aligned}$$

² The analysis covers 11 major German banks with an international focus.

capital is usually recognised as common equity tier 1 capital.

Some banks increased their capital positions by issuing new shares. In addition, one bank issued contingent convertible bonds (CoCos) for the first time, which can be converted into equity under specific, predetermined conditions.¹³ The supervisory authorities recognise CoCos as additional tier 1 instruments, and they count towards the regulatory tier 1 capital ratio. Large international banks, especially in Switzerland and the United Kingdom, have recently made increased use of these instruments. In view of the tax and intended regulatory treatment¹⁴ of CoCos, other German banks are planning to use them, too.

New valuation rules result in more realistic risk reporting

The changes in the prudential supervisory framework affect not just the tier 1 capital base but also the volume of risk-weighted assets. The introduction of stricter valuation rules – primarily for securitisations, assets in the trading book and counterparty and credit risks – pushes up the amount of risk-weighted assets.¹⁵ Thus the combined risk-weighted assets of the 12 major German banks with an international focus were roughly 7.1% higher in mid-2014 than in mid-2013. This rise is chiefly attributable to the introduction of the new prudential rules.

Adjusted for this statistical break, the risk-weighted assets of the subgroup of 12 major German banks actually record a slight drop.

For the 12 major German banks with an international focus, the ratio of loans with an increased default risk to total credit exposure has fallen slightly since December 2009.

This results from a lower volume of total assets and a reduction in risk exposures. For the 12 major German banks with an interna-

tional focus, the ratio of loans with an increased default risk¹⁶ to total credit exposure has fallen slightly since December 2009. In mid-2014, this ratio was approximately 3.6%. The increase in risk-weighted assets under the new supervisory framework has remained moderate due to the reduction of risky assets.

Slower balance sheet shrinkage

The risk content¹⁷ of the balance sheets of the banks under consideration has risen markedly as a result of the increase in risk-weighted assets brought about by the introduction of CRD IV and CRR (see Chart 2.5). In mid-2014, the risk-weighted assets of the 12 major German banks with an international focus accounted for 26% of their total assets. This represents an increase of approximately 3 percentage points compared with mid-2013, though this rise is primarily attributable to the stricter valuation rules.

The total assets of the banks considered here have contracted in relation to tier 1 capital. The deleveraging process seen in previous years has continued. For the group of 12 major German banks with an international focus, leverage, measured as the ratio of total assets to tier 1 capital, stood at 26.7 in mid-2014 compared with 28.2 in mid-2013 (see Chart 2.5). Their aggregate total assets fell by just over 5% year on year. The contraction of customer business was significantly less pronounced than the fall in total assets.

The major German banks have continued to deleverage.

¹³ See Deutsche Bundesbank (2013), pp 54-55.

¹⁴ Provisions on the conditions for conversion in accordance with the draft Act amending the Companies Act (Gesetzentwurf zur Änderung des Aktiengesetzes).

¹⁵ See Deutsche Bundesbank (2011b), p 21 ff.

¹⁶ Loans with an increased default risk consist of loans with a probability of default that is greater than 4%, past due loans and loans for which specific loan loss provisions have been recognised.

¹⁷ The risk content denotes the ratio of risk-weighted assets to total assets.

In mid-2014, the average leverage of credit cooperatives and savings banks stood at 13.2 and 12.8 respectively, well below the mean figure for the 12 major German banks with an international focus. The lower leverage of the credit cooperatives and savings banks is attributable to their respective business models, which are geared to traditional lending business.

Overall, it can be said that the banks under consideration here further strengthened their resilience. The changes in the relevant indicators, especially tier 1 capital and risk-weighted assets, must be interpreted against the background of stricter regulatory requirements.

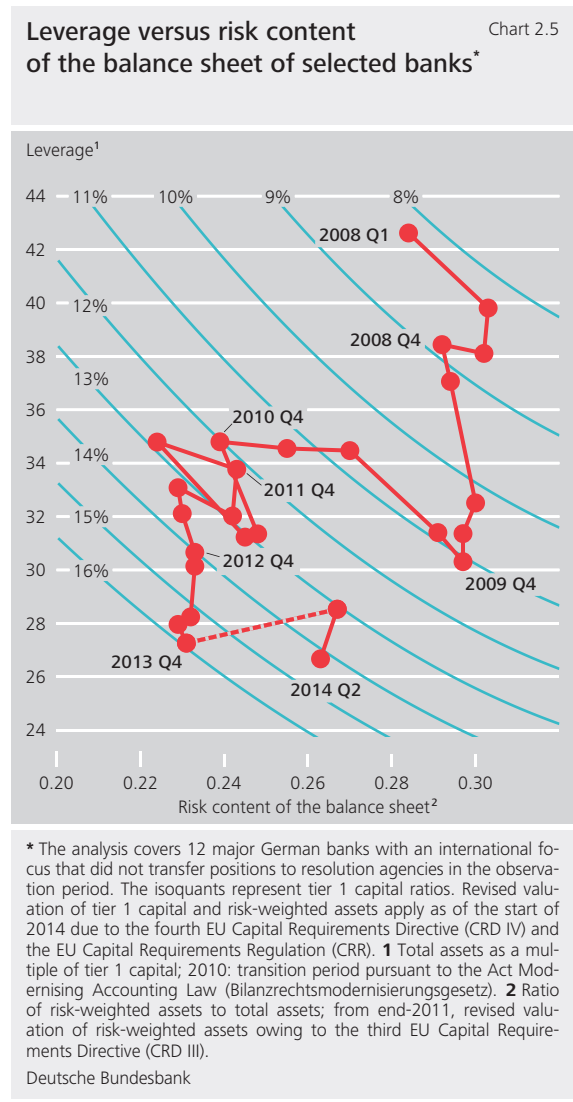
Provision of liquidity remains stable

The provision of liquidity, which – along with capital – is a key indicator of banks' stability, will in future be measured by the liquidity coverage ratio (LCR)¹⁸ and the net stable funding ratio (NSFR).¹⁹ The liquidity buffer can be used until these two indicators are finally introduced. It measures the difference between liquid assets and short-term liabilities.²⁰ The liquidity buffer of the 12 major German banks with an international focus has remained relatively stable at a high level since mid-2010, amounting to approximately 23% of liquid assets in mid-2014.

Resilience improved – systemic risk remains

Overall, the new rules of the Basel III framework have exerted pressure on banks to adjust. At the same time, banks prepared themselves for the comprehensive assessment of their balance sheets by the ECB.²¹ They have significantly increased their resilience since the peak of

The failure of individual banks could still trigger systemic contagion effects.



the financial crisis, also by improving the quality of their capital. Nevertheless, the failure of individual

18 The LCR measures a bank's stock of highly liquid assets in relation to its net payment obligations under a stress scenario. By setting a lower bound for the LCR, it is possible to prescribe a minimum stock of certain highly liquid assets as a short-term liquidity reserve. The LCR will be phased in gradually between 2015 and 2018.

19 The NSFR is calculated as the ratio of available funding to "stable" funding as demanded by the supervisory authorities. It will come into force in 2018.

20 Liquid assets are understood to be available funds pursuant to the Liquidity Regulation (Liquiditätsverordnung) with a residual maturity of up to one month.

21 See also the box entitled "Results of the comprehensive assessment", p 51.

banks could still trigger systemic contagion effects. This is demonstrated by studies on the interconnectivity of systemically important financial institutions (see the box entitled "Contagion effects in the network of German banks" on page 45).

Banks' interest rate risk could perceptibly impair their profitability

As explained at the start of this chapter, interest rate changes may entail considerable risks for banks and therefore also for financial stability. For this reason, the Bundesbank has analysed the potential impact of various interest rate scenarios on banks' income from term transformation, their overall interest income and their equity capital. In contrast to the mark-to-market approach to measuring interest rate risk outlined in the previous section, here the focus is not on the short-term effects of an interest rate change but on the medium and long-term effects, with new business being explicitly taken into account.

The macro stress tests that were carried out in this context exclusively covered small and medium-sized banks (savings banks, credit cooperatives and commercial banks (excluding big banks)), as the Bundesbank's market risk surveys indicate that for larger banks the direct interest rate risk is small.²² The scenarios are based on a time horizon of ten years. In contrast to credit risks, risks from continuously eroding net interest income usually only become critical in the long term, when the net interest result impairs profitability. The following scenarios were examined (see Table 2.2):

– The baseline scenario assumes that the future spot interest rates for short-term (three-month) and long-term (ten-year) interest rates correspond to the current²³ implied short and long-term forward

rates derived from the Bund yield curve. The short-term interest rate is then increased by an add-on of 20 basis points.²⁴

The baseline scenario can be interpreted as a market-based forecast of interest rate movements. Long-term interest rates rise continuously, while short-term interest rates only rise in the medium term. The difference between long-term and short-term interest rates therefore narrows in the medium term and in the end amounts to only 0.01 percentage point.

- In scenario 1, it is assumed that the current low-interest-rate environment will continue, with the current yield curve being frozen for the next ten years.
- Scenario 2 represents a situation in which income from term transformation tends towards zero. It also assumes a completely flat yield curve for the coming years. The general interest rate level stands at 0.7% in this scenario.
- In scenario 3, short-term interest rates rise abruptly by 3.5 percentage points after three years, after which point long-term interest rates likewise increase continuously.²⁵

All scenarios (except for the baseline scenario) depress banks' net interest result. Income from term transformation is often the focus of attention, but in fact it only makes up part of the overall interest result. To complete the picture, we therefore use an

²² See Deutsche Bundesbank (2011a), p 54.

²³ The reference date is 30 June 2014.

²⁴ This add-on is applied because the forecast model is based on the three-month EURIBOR. The 20 basis points relate to the spread between the three-month EURIBOR and the three-month interest rate in June 2014 derived from the Bund yield curve.

²⁵ The interest rate rise of 3.5 percentage points seems fairly high, but such an interest rate scenario actually occurred in the 1980s, from May 1988 to May 1989. C Memmel (2008) shows that of 260 historical scenarios observed, this one was the least favourable for banks.

Contagion effects in the network of German banks

From a financial stability perspective, banks that are considered “too big to fail” are to be seen as problematic.¹ These are systemically important financial institutions (SIFIs) whose failure would put the entire financial system at risk. Until now, these banks have been able to count on government support should they run into difficulties. This implicit government guarantee entices the institutions to take greater risks, places a burden on taxpayers and distorts competition.

To address the too-big-to-fail problem effectively, SIFIs must first be identified and the negative externalities that would occur in the event of their failure must be quantified. In addition to their size, how closely banks are interconnected is an important factor that determines their systemic importance. For example, the failure of a small bank with close ties to other financial market participants can also destabilise these institutions.

For the German interbank market, the Bundesbank has simulated how negative exogenous shocks and the associated credit deterioration of the borrowing banks in the network are transferred to their lending banks.² There is empirical evidence³ of a negative correlation between the probability of default of a bank and its tier 1 capital ratio: the higher a bank’s tier 1 capital ratio, the lower its probability of default. At the same time, an increase in a bank’s probability of default leads to a devaluation of claims of other banks vis-à-vis this bank. Because these devaluations are comparable to a loss, the tier 1 capital ratio falls, along with the creditworthiness (measured as probability of default) of this bank’s direct lenders. As the direct lenders refinance themselves through other banks, the devaluation of claims and the decrease of the capital ratio are passed on to other banks. The simulation described above therefore leads to a credit loss at the level of the entire banking system. The

overall credit loss can be used to quantify the negative externalities on the financial system caused by the reciprocal interbank linkages.

For Germany, the results of the approach described above reveal that only a small part of the overall contagion effect is caused by a direct devaluation of claims (direct contagion effect). In fact, it is indirect devaluations that play a major role. These indirect effects are the result of deteriorations in the credit ratings of other banks. Although these banks are not directly affected, they are closely interconnected with the bank that originally caused the disruption (indirect contagion effect). Indirect effects account for 81% of the overall effect on average, assuming that the government does not intervene. In fact, some of the affected banks are so strongly interlinked that the failure of one of these banks could lead to the failure of several others.

The approach presented in this article should be seen as a supplement to other methods in the literature on the measurement of systemic risk, such as the CoVaR approach developed by Adrian and Brunnermeier.⁴ First, these methods are based on a different set of data. Second, unlike the approach set out here, indirect contagion effects are not explicitly taken into account in these models.

¹ See Deutsche Bundesbank, Financial Stability Review, November 2011, pp 65-82.

² See K Fink, U Krüger, B Meller and L H Wong (2014), BS Loss – a comprehensive measure for interconnectedness, Working Paper, available online at: www.eba.europa.eu, 3rd EBA Policy Research Workshop “How to measure the riskiness of banks”.

³ See B Craig, M Koetter and U Krüger (2014), Interbank lending and distress: observables, unobservables, and network structure, Deutsche Bundesbank Discussion Paper, No 18/2014.

⁴ See T Adrian and M K Brunnermeier (2011), CoVaR, Working Paper, Princeton University. Alternatively, the literature suggests approaches based on the “systemic expected shortfall” (see V V Acharya, L H Pedersen, T Philippon and M P Richardson (2012), Measuring Systemic Risk, CEPR Discussion Paper No 8824).

Macro stress test: interest rate scenarios

Table 2.2

	Baseline scenario	Scenario 1	Scenario 2	Scenario 3				
Interest rate	Interest rates in the scenarios							
Short-term interest rate	Implied three-month forward rates from the Bund yield curve + 20 basis points	Bund with residual maturity of three months – interest rate on 30 June 2014 + 20 basis points	2014 as in the baseline scenario, from 2015 onwards: 70 basis points	Interest rate shock in 2017 with an increase of 3.5 percentage points				
Long-term interest rate	Implied ten-year forward rates from the Bund yield curve	Bund with residual maturity of ten years – interest rate on 30 June 2014	2014 as in the baseline scenario, from 2015 onwards: 70 basis points	A slight fall, followed by a linear increase as of 2018				
	Interest rates of the scenarios in per cent (annual averages)							
Year	Short-term interest rate	Long-term interest rate	Short-term interest rate	Long-term interest rate	Short-term interest rate	Long-term interest rate	Short-term interest rate	Long-term interest rate
2014 ¹	0.26	1.46	0.27	1.26	0.26	1.46	0.27	1.24
2015	0.19	1.64	0.27	1.26	0.70	0.70	0.27	1.15
2016	0.39	1.96	0.27	1.26	0.70	0.70	0.27	1.03
2017	0.75	2.27	0.27	1.26	0.70	0.70	3.77	0.97
2018	1.17	2.55	0.27	1.26	0.70	0.70	3.77	1.36
2019	1.62	2.79	0.27	1.26	0.70	0.70	3.77	1.84
2020	2.05	2.99	0.27	1.26	0.70	0.70	3.77	2.32
2021	2.44	3.13	0.27	1.26	0.70	0.70	3.77	2.80
2022	2.79	3.24	0.27	1.26	0.70	0.70	3.77	3.28
2023	3.07	3.29	0.27	1.26	0.70	0.70	3.77	3.76
2024	3.30	3.31	0.27	1.26	0.70	0.70	3.77	4.24

¹ For the baseline scenario and scenario 2 the annual averages for 2014 include realised values up to the scenarios' reference date of 30 June 2014. By contrast, scenarios 1 and 3 only take into account the scenario interest rates in the second half of 2014.

econometric model that takes into account all components of the interest result.²⁶

Interest rate shock has significant impact on profit and loss account

Chart 2.6 shows the median development of the net interest margin in the four scenarios. In the baseline scenario the net interest income initially rises, peaking in 2018. Owing to the subsequent flattening of the yield curve, net interest income then falls until

the end of the forecast period in 2024. Finally it actually falls slightly below its initial level.

In scenario 1, which simulates a freezing of the current yield curve, net interest income remains roughly at its low initial level. With a completely flat yield curve, as assumed by scenario 2, net interest income falls sharply in 2015 and 2016. Scenario 3 represents the most extreme scenario. The abrupt rise in inter-

²⁶ Banks' interest income and interest expenditure are explained using bank-specific variables and interest rates. The resulting interest rate sensitivities make it possible to determine the impact of the individual scenarios on banks' interest income.

est rates by 350 basis points puts a severe strain on net interest income, which plummets in the first few years (by 27%) before subsequently recovering.

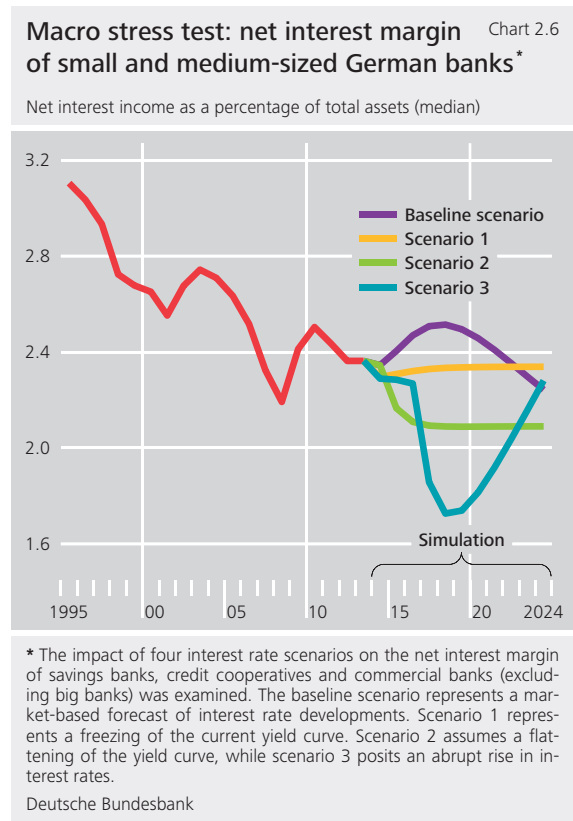
In order to estimate the impact on profitability and thus on banks' capital, the scenarios for net interest income have to be complemented by assumptions for the other expenditure and income components. This involves extrapolating all amounts from 2012²⁷ and specifying allocations to loss provisions.²⁸

The biggest impact on profitability is caused by a sharp and abrupt rise in interest rates (scenario 3). Many banks slip into the red under this scenario. Even a marked flattening of the yield curve, as in scenario 2, leads to a significant fall in profit (-43%).

The biggest impact on the profitability of small and medium-sized institutions is caused by a sharp and abrupt rise in interest rates.

The key question for financial stability is whether banks are capable of absorbing the losses incurred. The next step of the study therefore involves identifying how many banks in each year will, once potential losses are deducted, fail to meet the regulatory minimum capital ratio and hence encounter distress. It is assumed that the banks' risk-weighted assets remain constant over the entire forecast horizon and that credit default rates do not increase as a result of rising interest rates.²⁹ The minimum capital requirements comprise all tier 1 capital requirements plus the capital conservation buffer. In this context it must be borne in mind that the minimum capital ratio will rise from 5.5% in 2014 to 8.5% in 2019 in line with the phase-in of Basel III.

The results show that a maximum of 9% of banks fail over the ten-year forecast period.³⁰ This applies even if it is assumed that profits are distributed in full. The results are primarily attributable to the good overall capital levels of the banks in question, enabling them



to absorb losses. However, there are differences between the individual categories of banks. Banks in the commercial bank category (excluding big banks) fall below the minimum capital ratio more frequently.

In the adverse scenario especially banks in the commercial bank category (excluding big banks) fall below the minimum capital ratio more frequently.

²⁷ The data for 2012 were the most up-to-date data available at the time the stress test was carried out (mid-2014). By extrapolating the data, an implicit assumption is made that current data are the best forecast of future data.

²⁸ Loss provisions in 2012 were at historically low levels. For the forecast period it is assumed that they return to their median level for the years 1995-2012 (0.4% in relation to total assets).

²⁹ It is therefore implicitly assumed that the composition of the balance sheet and its risk content will not change.

³⁰ By way of comparison, in the period from 1995 to 2012, the number of small and medium-sized banks contracted by approximately 4% per year (primarily due to mergers and acquisitions). However, possible contagion effects are not taken into account in the above analysis. This risk appears relatively small as the capital of the failed banks in the scenarios examined is completely eroded only in a few cases.

quently. This group is very heterogeneous in terms of capital base and profitability. It includes a disproportionately large number of highly capitalised banks, but also many poorly capitalised banks which are consequently particularly susceptible to distress. All banks should continue their efforts to ensure that they maintain an adequate capital buffer so that they are not only able to withstand an isolated interest rate shock, but are also equipped to deal with several concurrent risks.

Results of the comprehensive assessment

The resilience of German banks in comparison to banks in the rest of Europe can be evaluated using the results of the ECB's comprehensive assessment of 130 banks. The comprehensive assessment consisted of an asset quality review (AQR), designed to estimate the overall risk situation, and a stress test, which the banks carried out in accordance with criteria set out by the ECB (see the box entitled "Results of the comprehensive assessment" on page 51).

The macro stress test described in the previous section differs from the stress test of the comprehensive assessment essentially in three aspects. First, the Bundesbank's macro stress test relates to small and medium-sized banks, which are the ones primarily exposed to interest rate risk. Second, the Bundesbank's stress test solely addresses interest rate risk so as to examine this risk in isolation, whereas the stress test carried out as part of the ECB's comprehensive assessment considers diverse risks to which banks are exposed. Third, the Bundesbank study has a stress period of ten years in order to cover medium and long-term effects, while the ECB's comprehensive assessment stress test has a time horizon of just three years.

Insurers' business development dampened by low-interest-rate environment

In 2013, as in previous years, low interest rates shaped the business development of German insurance companies. Primary insurers on the whole were able to increase their premium revenue by just over 3% year on year. German life insurers achieved above-average premium growth of just under 4%, but only with regard to existing policies. New business, by contrast, declined sharply. With 5.5 million policies sold in 2013, there was a fall of just under 13% on the year.³¹ This demonstrates that life insurance loses some of its appeal during periods of low interest rates. For policies with regular premiums, the decline was even more pronounced. This development was partly offset by an increase in the number of single-premium policies.

The intra-year developments at primary insurance companies in 2014 can be gauged using the quarterly financial reports published by large insurance groups. In the first three quarters of 2014, the operating profit of the groups examined rose by 5.8% year on year (see Chart 2.7); premium income fell slightly by 0.4%. Net investment income grew by 7.0% on the year.³²

For life insurers, in particular, the prevailing low-interest-rate environment plays a crucial role with respect to their stability. In the event of unfavourable market developments, the income from investment generated by some companies may no longer be sufficient in the long term to make agreed guaran-

³¹ See German Insurance Association (Gesamtverband der Deutschen Versicherungswirtschaft e.V. or GDV) (2014a) and (2014b).

³² Under the International Financial Reporting Standards (IFRS), certain assets are marked to market. This means that the market value of fixed-income securities rises when interest rates fall. The net investment income result has, therefore, been impacted by this change in market values.

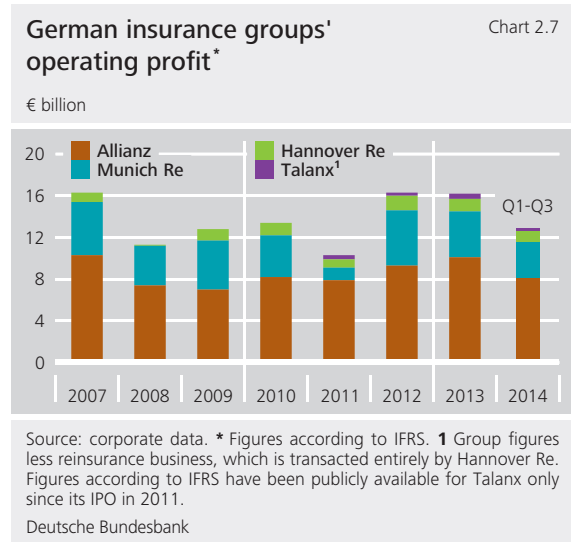
teed payments to policyholders and to fulfil any additional profit participation commitments.³³

The yield on public bonds issued by German central government (Bunds) can be used as an indicator of the rate of return on new investment. Since September 2011, the yield on Bunds has been lower than the maximum technical interest rate applying to new business.³⁴ Following a sideways movement in 2012 and 2013, it fell by just over 90 basis points to below 0.7% in 2014 (as at end-October 2014). At the same time, life insurers' obligations to service outstanding policies have remained high as the maximum technical interest rate in the industry's portfolio averaged 3.1% at the end of 2013.

Although life insurance companies were able to raise their net return on investment again in 2013, the increase was due – as in 2012 – to them realising valuation reserves in order to be able to make allocations to the additional interest provision. The current average return on investment, which unlike the net return on investment covers only current income and expenditure in relation to investment,³⁵ has – in contrast to the net return on investment – been falling steadily over the past few years. The strains of the low-interest-rate environment are clearly visible here (see Chart 2.8 and the box entitled “Metrics for life insurers' return on investment” on page 53).

The low-interest-rate environment is also evident in the solvency situation of insurance companies. For instance, life insurers are still experiencing a downward trend in their coverage ratio³⁶ (see Chart 2.9). While own funds have remained virtually constant, the regulatory own funds requirements (solvency margin) have gone up continuously. This higher solvency margin is due, first and foremost, to the additional interest provision which companies have been obliged to set up since 2011. Moreover, the German

Continuing downward trend in life insurers' solvency situation.



insurance sector as a whole is in the process of adjusting to a new solvency regime (Solvency II) and, for this reason alone, needs to strengthen its capital base.

³³ A scenario analysis conducted by the Bundesbank revealed that, in a stress scenario with a prolonged period of low interest rates, more than one-third of German life insurers would no longer be able to fulfil the regulatory own funds requirements under the current solvency regime (Solvency I) by 2023. See Deutsche Bundesbank (2013), pp 69-85, as well as A Kablau and M Weiss (2014).

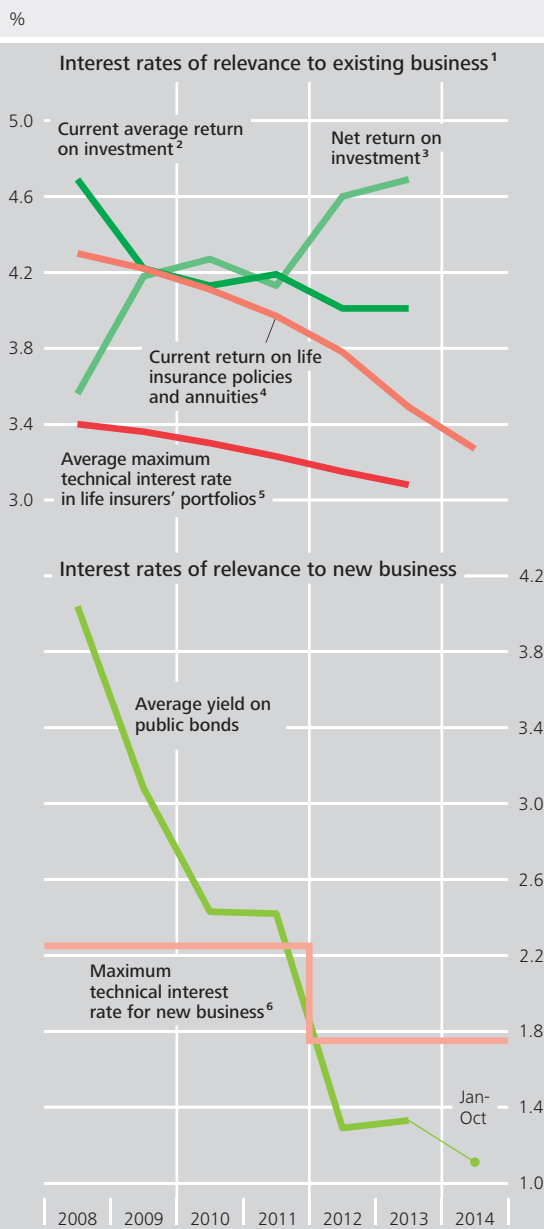
³⁴ The maximum technical interest rate is the maximum rate that life insurers can use as a basis when calculating the premium reserves required for new contracts. It stood at 2.25% up to 31 December 2011 and was then lowered to 1.75% on 1 January 2012. It is due to be lowered again on 1 January 2015, this time to 1.25%.

³⁵ Write-downs on land and buildings are also recognised as expenditure.

³⁶ The coverage ratio is the ratio of own funds to regulatory own funds requirements. The coverage ratio must be greater than 100% to fulfil the regulatory own funds requirements.

Life insurers' key interest rates

Chart 2.8



Sources: Assekurata, BaFin, Regulation on the Principles Underlying the Calculation of the Premium Reserve (Deckungsrückstellungsverordnung) and Bundesbank calculations. **1** Both the net return and the current average return on investment relate to the entire investment portfolio. The current return and the average maximum technical interest rate, by contrast, refer only to the saving component or the premium reserve. **2** The net return adjusted for extraordinary income and expenditure. **3** Investment income less expenditure relative to the annual average investment portfolio. **4** Comprises the maximum technical interest rate, direct credit amounts and current profit participation shares. **5** Average of the various product generations with different maximum technical interest rates when the respective contracts were concluded. **6** The maximum rate that life insurers can use as a basis when calculating the premium reserves required for new contracts.

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Few signs of life insurers reducing policyholders' profit participation share

The Life Insurance Reform Act (*Lebensversicherungsreformgesetz*)³⁷ entered into force on 7 August 2014. This was the German legislators' response to the risks posed to the life insurance segment resulting from the prevailing low-interest-rate environment. The package of measures adopted under the Life Insurance Reform Act can help to strengthen the stability of German life insurance companies.³⁸

However, the Life Insurance Reform Act, on its own, cannot provide a permanent solution to the problems created by a persistent low-interest-rate environment. Above all, efforts are required from the life insurers themselves. For instance, they should reinforce their capital buffers and reduce their vulnerability to interest rate risk.³⁹ Furthermore, they should take due account of the resulting drain on own funds when stipulating the policyholders' profit participation share.

Life insurers must make efforts to reinforce their capital buffers and reduce their vulnerability to interest rate risk.

The Bundesbank has given consideration to how certain measures impact solvency. It used an extended BaFin forecast for this purpose. In this forecast, life insurers were asked about their expectations regarding business development in the current year

37 This Act has introduced, inter alia, an amendment with regard to policyholders' participation in the valuation reserves. Allowance is now made for hidden losses on the liabilities side with regard to fixed-income securities. Other notable measures in the Life Insurance Reform Act include restrictions on dividend payments to shareholders and a lowering of the maximum technical interest rate from 1.75% to 1.25%. The Act has also raised the minimum threshold for policyholders' participation in the risk surpluses from 75% to 90%.

38 See Deutsche Bundesbank (2014a) and (2014b), pp 67-75.

39 Interest rate risk can be mitigated, for example, by means of products with a flexible guaranteed return or no guaranteed return at all.

Results of the comprehensive assessment

For the German banks under review, the comprehensive assessment (CA) conducted by the ECB¹ revealed a capital shortfall of €229 million at one institution (euro area: €24.6 billion across 25 banks). This shortfall was already addressed by raising capital in 2014.

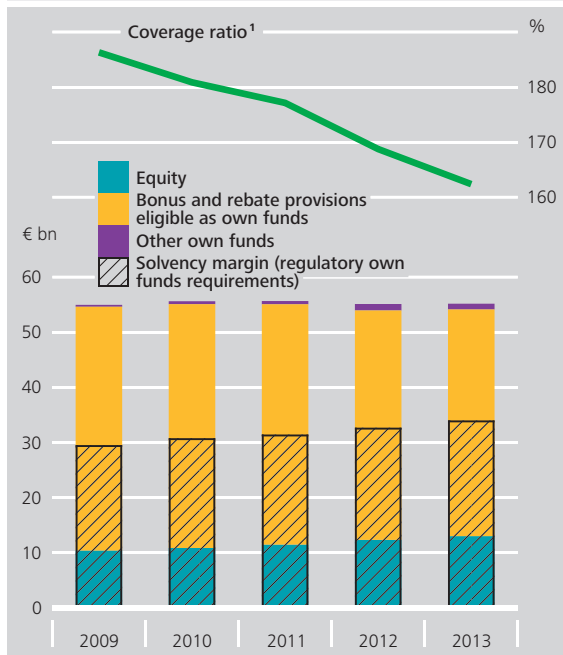
The CA comprised an asset quality review (AQR) and stress test, consisting of a baseline and adverse scenario. The AQR identified a negative capital effect of €3.9 billion for the German banks, which is equivalent to 0.3% of common equity tier 1 (CET1) capital (euro area: €33.8 billion). This effect is largely the result of revaluations in the shipping finance and real estate portfolios. The AQR did not result in any retroactive adjustments to German banks' financial statements for 2013. However, positions totalling €8.4 billion were reclassified as non-performing exposures (NPEs). A considerable part of this reclassification is due to the use of a single European Banking Authority (EBA) standard which was not yet legally binding at the time of the CA. The NPEs in the euro area rose by 18% to €879 billion in total. In the adverse scenario used in the stress test, the CET1 ratio for the German banks resulting from the AQR fell by 3.8 percentage points on aggregate (euro area: -3.0 percentage points). Some German and European institutions only just passed this stress scenario, however. It is particularly important that these institutions examine their business models and position themselves sustainably. In order to improve their resilience, nine of the German banks under review have already raised €14.4 billion in capital (euro area: €40.5 billion) this year.

The thorough review of bank balance sheets and the resulting raising of capital have improved the transparency and resilience of the banking system. Some aspects require further monitoring, however. The CA showed that the deferred tax assets reported by banks in the euro area make up a significant part of the total CET1 ratio. This tightens the sovereign-bank nexus in some countries, as the tax claims can no longer be realised in the event of a country's insolvency.

Looking ahead, further efforts will be necessary in view of the stricter regulations under Basel III. Five German banks would not have passed the stress test under the Basel III rules, which will not apply fully for another few years. It is particularly in the unweighted capital ratio, known as the leverage ratio, where German banks still have some catching-up to do by European standards. The CA should therefore not be regarded as having a one-off impact; further steps are needed. From a macroprudential perspective, it is particularly important to safeguard the stability of the banking sector in the long term. Continued improvements to transparency and resilience are a key element of this.

¹ See Deutsche Bundesbank, Monthly Report, October 2014, pp 43-64.

Life insurers' own funds Chart 2.9



Source: BaFin. ¹ Ratio of own funds to the solvency margin.
 Deutsche Bundesbank

as well as in the next four years to come. The analysis concluded that, based on its underlying assumptions about interest rate developments,⁴⁰ policyholders' participation in the valuation reserves would have amounted to €10.9 billion up to 2017 if the Life Insurance Reform Act had not been introduced. The Life Insurance Reform Act is likely to ease the pressure on life insurance companies considerably in this respect. Not making any dividend payments to shareholders at all could raise the level of own funds by a further €3.5 billion. Reducing the policyholders' profit participation share to zero could add another €28.4 billion to life insurers' own funds up to the end of 2017. Viewed in relation to life insurers' cumulated own funds, which totalled €55.2 billion at the end of 2013, this would constitute an increase of around 51%.

Aside from the reform of policyholders' participation in the valuation reserves, therefore, a smaller policy-

holders' profit participation share can considerably enhance resilience in a low-interest-rate environment. Insurance companies are currently making little use of this option, however. According to their forecast calculations, life insurers are also not planning any significant reductions in their profit participation shares up to 2017. Concerns about market share are likely to be a key driver here.

Abrupt hike in interest rates can have negative implications for life insurers

A prolonged period of low interest rates is not the only situation that can jeopardise the stability of life insurance companies, however; an abrupt hike in interest rates also harbours risks. Rising interest rates give policyholders a greater incentive to lapse their policies and accept payment of the surrender value. This is

Not only a low-interest-rate environment but also an abrupt interest rate hike harbours risks for life insurers.

an attractive option if investing the surrender value on the capital market promises a higher return than maintaining the insurance policy.⁴¹ The incentive is stronger towards the end of an extended phase of low interest rates, in particular. In the event of policy lapses, policyholders profit directly from the higher capital market rates. If they maintain their policies, by comparison, they continue to participate in the life insurers' portfolios, the return on which is encumbered by legacy holdings of low-yielding securities.

⁴⁰ It was assumed that funds were invested or reinvested solely in Pfandbriefe with a maturity of ten years and a return of 2.50%. Life insurance companies stipulate the policyholders' profit participation share individually in their forecast calculations.

⁴¹ Where policyholders judge the biometric risks (eg mortality, longevity, occupational disability) covered by their life insurance to be high, it may make better sense for them to nonetheless keep the policy. This option is excluded in the rest of the analysis.

Metrics for life insurers' return on investment

In order to honour guaranteed payments to their policyholders, life insurers must generate sufficient returns, primarily on their investments. According to their financial statements, German life insurers' profitability remains stable, yet in a persistent low-interest-rate environment investment income declines more rapidly than the returns payable to policyholders.

The net return on investment is generally used as the measure of investment performance. It is the ratio of the balance of all investment income and costs to total investment. In 2013, the net return on investment stood at just under 4.7% on aggregate for German life insurers. In recent years, the net return has been strongly affected by the fact that life insurers had to realise part of their growing valuation reserves to allow them to make the required allocations to the additional interest provision.¹ As a result of falling interest rates, allocations to the additional interest provision have risen significantly in recent years. They climbed from €1.5 billion in 2011 to just over €6 billion in 2013.

Focusing solely on the net return on investment, which has continued to rise of late, could give a misleading, overly positive impression of life insurers' profitability. Adjusting the net return on investment for realisations of valuation reserves and income from write-ups produces the current average return on investment, which was barely above 4% in 2013. Since 2008, the current average return on investment has fallen by around 70 basis points, while the net return on investment has climbed by just over 110 basis points owing to realisations of valuation reserves (see Chart 2.8 on page 50).

The current return² measures the interest rate payable to policyholders on the saving component of their premiums. The maximum technical interest rate accounts for the largest portion of the current return, and came to an average of just under 3.1% of the saving component in 2013.³

This means that, since 2008, German life insurers' current average return on investment has fallen far more sharply than the maximum technical interest rate (the contractually guaranteed interest rate for policyholders). The narrowing gap between these two metrics is a reflection of the growing burdens on life insurers in the current low-interest-rate environment, and this convergence will become more acute if interest rates remain low.

There is no contradiction between this and the rise in the net return on investment – the latter being due, above all, to realisations of valuation reserves. In the medium term, however, the potential for such realisations is likely to wane if the low-interest-rate phase persists.

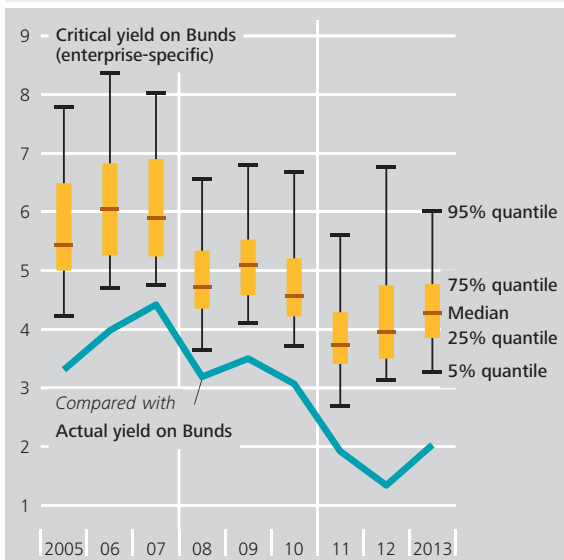
¹ The additional interest provision is a reserve which life insurers are required to set up by law to ensure that they remain able to honour agreed guaranteed payments in the future. Since 2011, this provision is required for policies for which the benchmark interest rate – the ten-year average of yields on zero-coupon euro interest rate swaps with a maturity of ten years – is lower than the original maximum technical interest rate. See section 5 of the Regulation on the Principles Underlying the Calculation of the Premium Reserve (Deckungsrückstellungsverordnung).

² The current return is the sum of the maximum technical interest rate (the contractually guaranteed interest rate for policyholders), direct credit amounts and current profit participation shares. In addition, insurers may grant their policyholders maturity bonuses and participation in the valuation reserves.

³ A life insurer's premium reserve corresponds to the saving component of all policyholders; it is smaller in volume than the insurer's investments.

Critical interest rate level for life insurers given an upsurge in policy lapses* Chart 2.10

Year-end data (%)



* Yield on Bunds with a residual maturity of ten years, above which an upsurge in policy lapses could impair life insurers' stability. The analysis covered the approximately 60 largest German life insurance companies with a premium reserve of more than €1 billion each.

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An upsurge in policy lapses would not necessarily threaten the stability of life insurance companies. As long as the market value of an insurer's assets is sufficient to cover the sum of the surrender values and other liabilities, payments to policyholders owing to policy lapses are not a problem.⁴² German life insurance companies at present have relatively large buffers in this regard. At the end of 2013, the market value of their investments amounted to around €865 billion, while the market value of other assets stood at about €52 billion.⁴³ These figures were set against policyholders' cumulated surrender values of around €696 billion, estimated as premium reserves less additional interest provisions. In addition, there were liabilities and provisions that do not qualify as own funds to the tune of around €81 billion. In the event of policy lapses, the difference between these assets and liabilities would leave a buffer of about €140 billion.⁴⁴ Viewed in relation to the market value of the assets, this is equivalent to around 15%.⁴⁵ This fig-

ure, which is sizeable by historical standards, reflects the fact that insurers' portfolios are still generating relatively high returns in the current low-interest-rate environment; this is borne out by the valuation reserves for fixed-income securities, which amount to around €56 billion.

If the interest rate level were to rise⁴⁶ abruptly by 2.1 percentage points, however, this buffer of all the German life insurers in aggregate would be fully depleted.⁴⁷ Given such an interest rate hike, the market value of the assets would be reduced to such an extent that it would only just be possible to meet the payment obligations in the theoretical extreme case of a lapse in all policies.⁴⁸

Such critical rises in interest rates can also be calculated for individual life insurers. They can then be added to the yields on listed Bunds with a residual maturity of ten years to give enterprise-specific crit-

⁴² This is based on the assumption that the market value of the assets remains unaltered, even in the event of massive sales of securities. Falling market prices owing to an upsurge in policy lapses would otherwise result in smaller buffers.

⁴³ These data and all of the data to follow exclude business for the account and at the risk of policyholders. Deposit receivables from insurance business assumed as reinsurance cover are classified as other assets.

⁴⁴ This buffer is calculated as the market value of assets of €917.6 billion less the premium reserve without the additional interest provision of €696.3 billion and less other liabilities and provisions that do not qualify as own funds of €81.0 billion. The figure of €140.3 billion also corresponds to the sum of additional interest provisions, own funds and valuation reserves.

⁴⁵ The size of the buffer varies from one life insurer to the next. In the case of the larger German life insurance companies with a premium reserve of more than €1 billion each, the minimum figure at the end of 2013 was 9.3%, the median was 14.6% and the maximum figure was 20.9% of the assets' market value.

⁴⁶ A rise in the interest rate level is hereby understood as a positive parallel shift in the entire yield curve for Bunds.

⁴⁷ A hike in interest rates of this kind is not unrealistic. The Bundesbank's macro stress test (scenario 3) assumes an increase in interest rates of 3.5 percentage points. Such an interest rate shock actually occurred in the 1980s. See pp 44-47 (macro stress tests regarding interest rate risk, scenario 3).

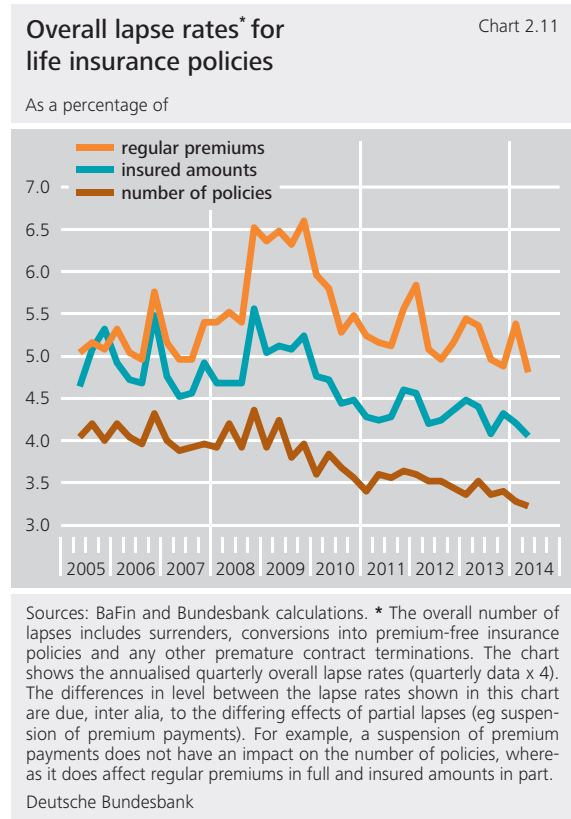
⁴⁸ According to life insurers' data, an interest rate rise of 1 percentage point reduces the market value of their assets by around 7.2%. The buffer accounts for €140 billion of the assets' market value of €918 billion, ie about 15.3%. The market value of the assets falls by this amount if interest rates rise by 15.3% / 7.2% = 2.1 percentage points.

ical interest rate levels. These critical interest rate levels fell in general in the course of the financial crisis from around 5.9% (end-2007) to around 3.7% (end-2011) as the median for the larger German life insurance companies⁴⁹ (see Chart 2.10). The median value increased again slightly to around 4.3% up to the end of 2013. The critical interest rate level stood at below 4% for more than a quarter of the larger German life insurance companies at the end of 2013, however. If the actual yield on Bunds with a residual maturity of ten years were to rise to this level abruptly, these life insurers' buffers would be used up and an upsurge in policy lapses could impair their stability.

Policyholders may also choose to terminate their life insurance policies prematurely for reasons other than a higher alternative rate of return.⁵⁰ The general debate on the future viability of life insurance could be a significant factor in this decision. For instance, policyholders may expect institutional changes. In Germany, for example, the new arrangements regarding the distribution of valuation reserves upon expiry of a policy introduced by the Life Insurance Reform Act may provide incentives for premature termination. Overall lapse rates are relatively stable at the current end, however (see Chart 2.11).⁵¹ In terms of insured amounts, the annual average lapse rate has remained within a range of 4% to 6%. The lapsing of life insurance policies currently does not pose an excessive risk to financial stability.

In order to enhance their resilience, life insurers should look to reduce their interest rate risk and strengthen their capital base. The introduction of Solvency II from 2016 onwards will provide life insurers with regulatory incentives to capture the relevant risks more adequately and to back them appropriately with own funds.

In order to enhance their resilience, life insurers should look to reduce their interest rate risk and strengthen their capital base.



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⁴⁹ The larger life insurance companies are deemed to be those with cumulated premium reserves of more than €1 billion each.

⁵⁰ For more information on determinants of life insurance policy lapses, see S G Fier and A P Liebenberg (2013), pp 153-167.

⁵¹ The chart shows the annualised quarterly overall lapse rates (quarterly data x 4).

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Mortgage loans under observation

Financial crises are often triggered by price exaggerations in the real estate markets. Price exaggerations are particularly problematical when real estate purchases are heavily debt-financed. This is why the Bundesbank monitors mortgage lending in Germany very carefully. Disaggregated survey data are so far providing very few signs of procyclical behaviour by banks or of a destabilising nexus between lending activity and price developments. No particular dynamics are identifiable in towns and cities with high rates of price increase, either in terms of credit growth or in terms of the level of debt capital employed. If the current perception of risk changes, there are a number of macroprudential instruments that can be deployed. Survey data for selected towns and cities do, however, show that there is a large proportion of loans with a German sustainable LTV ratio of 100% or above. This is an indication that the German banking system would be exposed to structural vulnerabilities should a decline in prices in the urban housing markets be accompanied by a simultaneous increase in default rates.

The Bundesbank has examined various stress scenarios for the real estate market. The analyses show that the losses stemming from mortgage lending to households rise significantly in adverse scenarios. If isolated problems occur in the housing market in an otherwise stable economic setting, banks will probably be able to offset the losses from mortgage lending using the profits from other lines of business. As real estate crises are often accompanied by a macroeconomic deterioration, however, the aggregate losses could significantly impair banks' resilience.

Nevertheless, further data are required in order to better assess the risks in the real estate market. Given the rapid pace of developments on the housing market, improved data availability is not just highly relevant for the microprudential and macroprudential supervisors. Banks, too, have a vested interest in ensuring that the data stored in their IT systems are sufficient to allow them to quantify the risks of adverse macroeconomic developments.

Continuing upward trend in German housing prices

Whereas housing prices in most euro-area countries were growing strongly between the late 1990s and 2008 and were later subject to revision in the wake of the financial and sovereign debt crisis, prices in Germany were stagnating up until 2008. It was not until the overall economic recovery got under way after the severe recession in the latter part of 2008 and the early part of 2009 that the German real estate market began to pick up again. Price rises were initially concentrated on the major cities, but then spread to medium-sized cities (see Chart 3.1).

Taking account of the demographic and economic determinants, the Bundesbank estimates – on the basis of data available up until 2013 – that the overvaluations amount to an average of 25% in the seven largest German cities, and to an average of between 10% and 20%

Price exaggerations in residential housing markets pose a potential risk to financial stability.

in 93 further towns and cities.¹ Since the fourth quarter of 2013 there have been signs that the rise in prices has decelerated somewhat. Price exaggerations in residential housing markets pose a potential risk to financial stability, not least because residential mortgage loans to households account for over 40% of domestic lending in Germany.

When performing a risk assessment, there are two aspects which play a role: the development over time and the absolute level of risk. In booming real estate markets, in particular, there is the risk of credit standards being eased as a result of a procyclical reaction of banks. Sharp price increases might induce banks to take on excessive risks by expanding their lending activity and easing their credit standards. Experience in other countries – such as the United

States and Spain – has shown that, especially in an environment of low interest rates and high liquidity, this can result in unsustainable mortgage lending. Price rises and growing debt levels often have a mutually reinforcing effect.

In addition to a possible procyclical reaction with regard to lending, the absolute level of risk of mortgage loans also has to be considered. This risk is primarily driven by the characteristic features of real estate loans, such as the level of borrowing or the interest rate lock-in period. The risk content is crucial for determining the loss potential of real estate loans and thus structural vulnerabilities in the banking system. Conservative lending reduces the financial system's vulnerability to real estate price shocks and reduces the losses in the event of price corrections.

Results of a survey on mortgage loans

In order to be able to better assess the risks to financial stability in Germany stemming from the real estate market, the Bundesbank carried out a voluntary special survey on mortgage lending to households among selected German banks in the period from 2009 to 2013.² The survey focused on selected towns and cities, especially those which have witnessed particularly strong rises in housing prices, with a view to assessing the impact of the dynamic price trend on lending activity. The data permit, for the first time, a detailed insight into banks' credit standards in these towns and cities.

¹ See Deutsche Bundesbank (2014), pp 64-66.

² The voluntary special survey covered the mortgage lending activity of 116 banks in 24 towns and cities.

No indications of a destabilising interaction between prices and credit standards

On the whole, the special survey data provide very few signs of an easing of credit standards for mortgage loans.³ In principle, the slight increase in the average interest rate lock-in period during the obser-

On the whole, the special survey data provide very few signs of an easing of credit standards for mortgage loans.

vation period is also to be seen in a positive light from a financial stability perspective, as this allows debtors to reduce their vulnerability towards short to medium-term inter-

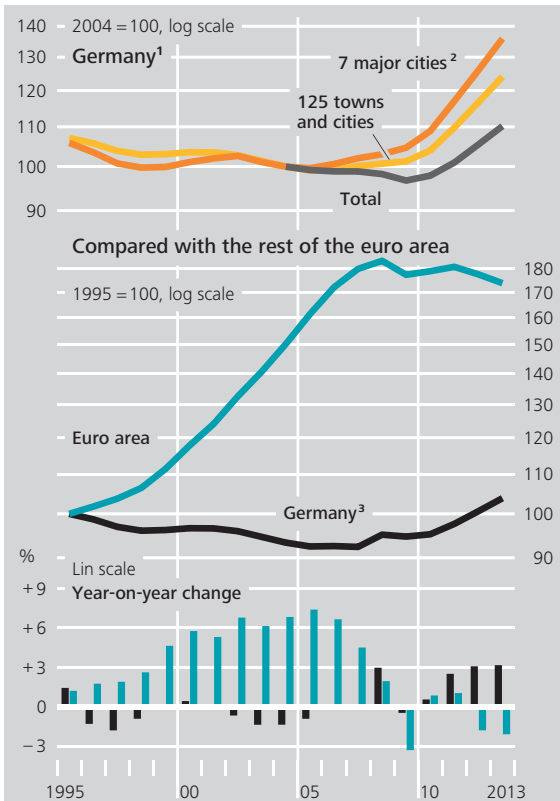
est rate increases. A longer interest rate fixation period does not necessarily lead to a higher interest rate risk for banks as they are able to manage this risk using various hedging options. The increase in the average initial amortisation rate from around 2.8% in 2009 to 3.6% in 2013 also reduced the vulnerability of borrowers. Especially in light of the historically low interest rate level, a higher amortisation rate is important for reducing the interest rate risk if follow-up financing is required.

The fact that banks estimate probabilities of default as being low at present could, however, prove to be problematical. As these probabilities of default are only estimated over a one-year horizon, they merely provide a snapshot of the real estate market. This means that they cannot be interpreted as longer-term default risks. Nevertheless, they generally have an impact on the longer-term interest rate conditions. The very low probabilities of default could therefore indirectly lead to an insufficiently risk-adjusted pricing of mortgage loans.

The danger of a destabilising interaction between lending and real estate prices is especially relevant in the event of a strong expansion of borrowing. This can occur as a result of strong credit growth, but

Housing prices

Chart 3.1



Sources: bulwiengesa AG, ECB, Association of German Pfandbrief Banks (vdp) and Bundesbank calculations. **1** Bundesbank calculations for terraced houses and freehold apartments based on data from bulwiengesa AG. **2** Berlin, Cologne, Düsseldorf, Frankfurt am Main, Hamburg, Munich and Stuttgart. **3** Up to 2006, bulwiengesa AG data for 125 towns and cities. From 2007, vdp price index for owner-occupied housing.

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also owing to an increase in the share of borrowed funds in real estate financing.

In Germany, growth in residential mortgage loans to households has been moderate at 2% per year since the beginning of 2013. In cities with strong price in-

³ Nor, however, do the survey results confirm the data provided by German banks for the Eurosystem's Bank Lending Survey (BLS), in which German banks have been reporting a trend towards a tightening of their credit standards for mortgage loans since 2009. One of the reasons for this discrepancy compared with the Bundesbank's special survey could be due to the primarily qualitative information provided by banks in the BLS or to a different sample group of banks.

creases, growth in mortgage loans was significantly higher at just under 5½%. Even so, no upward trend in the growth rates can be ascertained for the period between 2009 and 2013 for the towns and cities under consideration. Credit growth in these towns and cities thus appears to be structurally higher. However, the higher price rises in these towns and cities have not further amplified the differentials in the credit growth rates. There are also very few signs of an increase in borrowing for buy-to-let purchases.

The available data do not provide any indications of an increasing leverage ratio (see Chart 3.2). The German sustainable loan-to-value (LTV) ratio (*Beleihungsauslauf*) is the only widely available ratio which provides auxiliary information about the share of

The available data do not provide any indications of an increasing leverage ratio.

borrowed funds in residential real estate financing. It shows the loan amount in relation to the mortgage lending value. The latter is generally calculated by banks by means of a haircut on the market value and aims to provide a valuation of the property by incorporating sustainable supply and demand conditions.⁴ In 2013, the average German sustainable LTV ratio for new mortgage loans stood at approximately 85%.⁵ Owing to the haircut that is applied to the market value, it is very difficult to compare the values of the German sustainable LTV ratio with data on LTV ratios in other countries. In many other countries, a market-based LTV ratio is usually determined; this ratio was available only for a small number of banks in Germany.

The overall slow pace of growth in mortgage loans

The overall slow pace of growth in mortgage loans in Germany contrasts with observations in other countries.

in Germany contrasts with what has been observed in other countries, where price increases in the real estate markets were accompanied by an in-

crease in the credit volume and a relaxation of bank credit standards. Among other things, a correlation has been found for a number of countries between rising real estate prices and an increase in the LTV ratio.⁶ At the same time, mortgage loans with a high LTV ratio exhibited greater default rates.⁷ It is also apparent that exaggerations on the lending side often have their origin in those regions which were first hit by sharp price increases.⁸

The special survey shows very few signs of procyclical behaviour by banks, as the characteristics of lending barely changed during the observation period. Looking at the level of the individual lending characteristics, however, what is especially striking in the towns and cities observed is the share of loans with a German sustainable LTV ratio of over 100%. This share was relatively high throughout the reporting period at around one-third; 100% financing arrangements do not appear to be anything out of the ordinary in the surveyed towns and cities either. Financing arrangements can also be observed which cover not only the purchase price of the property, but also all of the additional associated costs. Earlier, smaller, special surveys in 2012 that were confined to individual towns and cities likewise showed very large percentages of loans with a high German sustainable LTV ratio.

The provisions of the Pfandbrief Act (*Pfandbriefgesetz*)⁹ do not automatically lead to a general limitation of the sustainable LTV ratio in Germany. This is

⁴ Other collateral is not taken into account in the German sustainable LTV ratio. However, according to information provided by institutions, such collateral plays a very minor role.

⁵ It should be noted, however, that the survey data on the German sustainable LTV ratio are subject to certain biases, the impact of which moves in different directions. However, a robustness analysis suggests that these factors do not lead to a systematic upward bias in the distribution of the German sustainable LTV ratio.

⁶ See C Crowe, G Dell’Ariccia, D Igan and P Rabanal (2011).

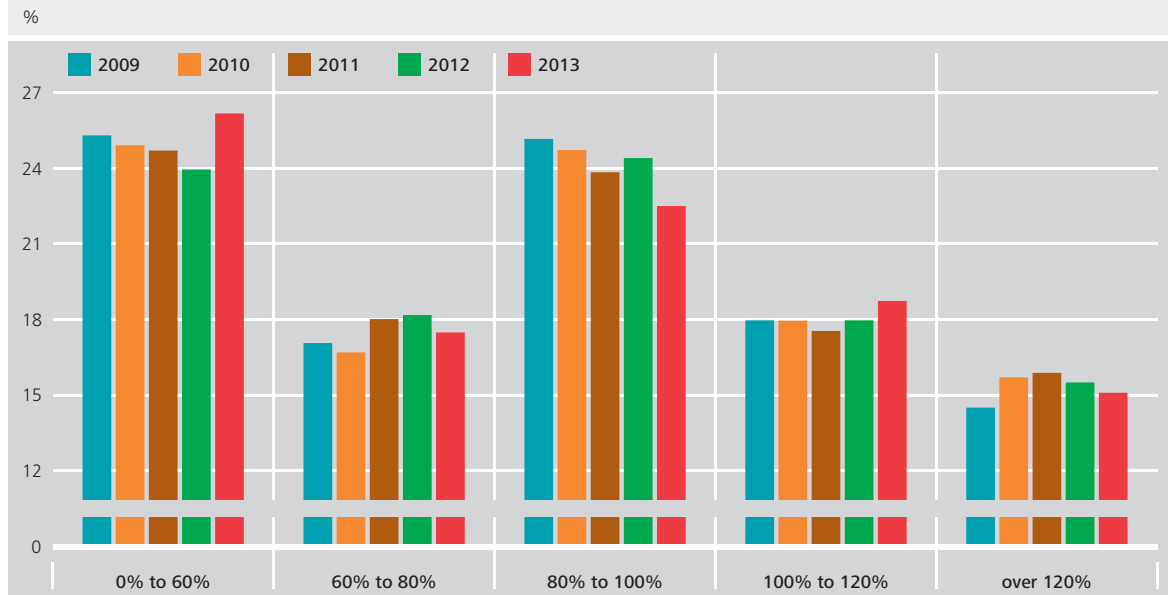
⁷ See J Geanakoplos (2010), M Koetter and T Poghosyan (2010).

⁸ See W Goetzmann, L Peng and J Yen (2012) and G Dell’Ariccia, D Igan and L Laeven (2012).

⁹ Pursuant to section 14 of the Pfandbrief Act, only 60% of the mortgage lending value may be used to cover mortgage Pfandbriefe.

Distribution of new residential mortgage loans according to size categories of the German sustainable LTV ratio (*Beleihungsauslauf*)*

Chart 3.2



Source: Bundesbank special survey among 116 banks in 24 towns and cities. * *Beleihungsauslauf* is the German term used to express the ratio of a loan to the mortgage lending value of an asset purchased, where the mortgage lending value is generally calculated by means of a haircut on the market value and is intended to reflect the sustainable value of a property. Given that the concept used in Germany differs from other concepts widely used internationally, a comparison of the average *Beleihungsauslauf* with average LTV ratios from other countries is very difficult.

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probably due to the fact that only a small percentage of mortgage loans are subject to the strict requirements of the Pfandbrief Act and thus to a mortgage lending limit. Barely €120 billion of mortgage loans is used as collateral for German mortgage Pfandbriefe. This is equivalent to around one-tenth of outstanding residential mortgage loans to households. Furthermore, the impact of the Pfandbrief regulations is restricted by the fact that loans intended for securitisation by means of Pfandbriefe are often combined (internally) with additional subordinated loans in order to allow a larger share of debt capital to be employed.

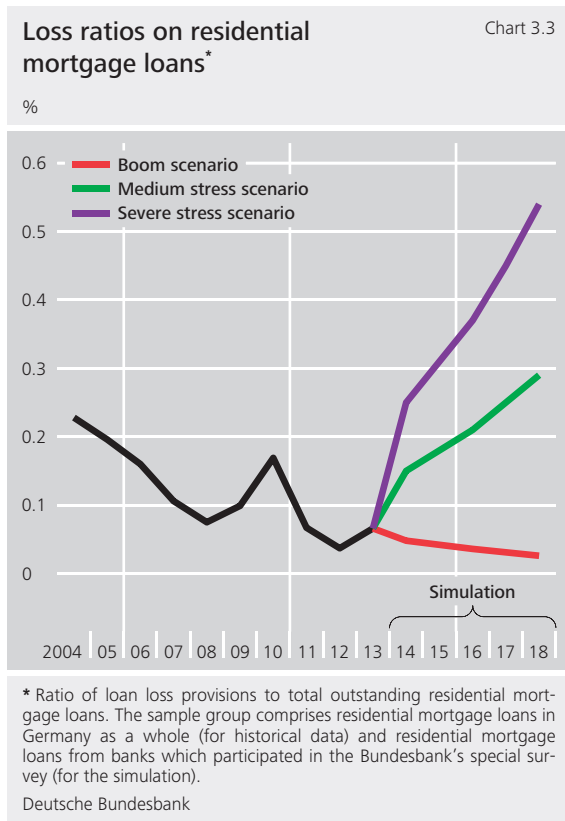
Structural vulnerabilities within German banking system to sharp downturn on real estate market

The large proportion of loans with a German sustainable LTV ratio of over 100% in the towns and cities

under consideration indicates that there might be structural vulnerabilities in the German banking system to crises on the real estate market. Furthermore, when assessing the risk content of mortgage loans, it should be noted that the mortgage lending value should reflect the value “under normal market conditions” and is thus not generally a good indicator of a property’s sustainable value “in an enforcement event”, for instance in the case of a foreclosure sale. Defaults on loans with a German sustainable LTV ratio of less than 100% can thus also result in losses for banks.

Stress test shows vulnerability in adverse scenarios

In order to gauge more accurately the extent of structural vulnerability, the Bundesbank performed a real estate stress test based on the survey data to es-



estimate what losses might arise in the German banking system in various market scenarios. The stress test is confined to residential mortgage loans granted to households and distinguishes between three scenarios. The first scenario assumes a protracted boom in which prices continue to rise strongly over the next five years and the default rates on mortgage loans remain at the very low level of currently around 1% per year. The second is a medium stress scenario in which the estimated overvaluations are slowly reduced over the next five years and the default rate rises to 2.5%. The third scenario is one of severe stress in which a steady decline in prices over the next five years ultimately leads to an undervaluation of 5% in all towns and cities. In addition, the probability of default climbs to 4%.

The default rates assumed in the stress scenarios are based on experience at an international level, even though such rates cannot be applied one-to-one due

to the varying market characteristics. For instance, in the medium stress scenario, the real estate default rates are still lower than those in the prime segment of the US real estate market in the period from 2009 to 2011, when they increased to as much as 1% per quarter. The average probability of default of 4% assumed in the severe stress scenario is still well below the levels observed in Spain and Ireland, for example, or the amount recorded for the US housing market as a whole.

Chart 3.3 compares the historical loss ratios on residential mortgage loans to households with the simulated average loss ratios in the various market scenarios on the basis of the survey data.¹⁰ The chart shows that the estimated loss ratios are heavily dependent on the market setting. In the scenario of a protracted boom, the loss ratios decline further over the coming years since the price rises lead to

In an adverse macroeconomic environment considerable losses may arise in the German banking system.

higher asset recovery ratios in the event of credit default. The adverse scenarios tell quite a different story. In both adverse scenarios, the loss ratios are well above the values that have been observed since 2004. In the severe stress scenario, they rise to as much as 0.54%, which is more than four times the average of the period from 2004 to 2013.¹¹ This clearly shows that the present relatively low level of defaults and loan loss provisions on residential mortgage loans to households are to be viewed against the background of a relatively favourable macroeconomic environment. In an adverse macroeconomic environment, considerable losses may arise for the German banking system.

¹⁰ Historical data refer to Germany as a whole, simulation results refer to only those banks contained in the survey. The loss ratio is defined as the ratio of loan loss provisions to total outstanding residential mortgage loans.

¹¹ Due to a lack of data for the period prior to 2004, no comparison can be made with the much sharper recession on the real estate market in the early 1990s.

A rough extrapolation of the figures to the German banks' entire portfolio of residential mortgage loans to households (€1,015 billion in December 2013) shows an increase in write-downs of €0.5 billion to as much as €2.9 billion per year in the medium stress scenario.¹² In the severe stress scenario, losses would rise to as much as €5.5 billion per year. This corresponds to around 20% or 40%, respectively, of the average annual pre-tax profits of German banks in the period from 2010 to 2013.¹³

Nevertheless, all of the surveyed institutions would still meet the regulatory capital requirements in the medium stress scenario. Even in the severe stress scenario, only one of the institutions under consideration would undershoot the regulatory minimum within the five-year simulation period. However, a number of institutions would experience a significant reduction in their excess regulatory capital.

While using survey data that reflect urban real estate markets makes for a relatively strict criterion for calculating losses, the stress test does not consider other stress factors such as defaults on mortgage loans with a commercial background. Moreover, the stress test does not take account of the fact that the banks' capital requirements for existing loans rise in the stress scenario due to higher expected losses. For banks applying the Basel Committee's Credit Risk Standardised Approach (CRSA), the average risk weighting of real estate loans would increase as the collateralised part of mortgage loans would decline along with the falling real estate prices. Banks applying the Internal Ratings-Based Approach (IRBA) would need to provide additional capital for the higher probabilities of default and loss given default (LGD).

The current capital requirements thus have a procyclical impact, especially for IRBA banks. In good times, less capital is required. As soon as the probabilities of default rise, more capital is required. If the

trend on the real estate market goes into reverse, institutions will simultaneously have to bear realised losses and top up their capital owing to the higher expected losses.

The extent to which the banking sector can shoulder the estimated losses is heavily dependent on the macroeconomic setting and the banks' profitability.¹⁴ Banks with profits in other lines of business could withstand an isolated shock to the real estate market if the banking environment is otherwise positive. However, it is rather unlikely that the real estate market would experience an isolated shock. This has been shown in a number of empirical studies using data from 1970 onwards for the United

Banks with profits in other lines of business could withstand an isolated shock to the real estate market if the banking environment is otherwise positive.

States of America¹⁵ and other OECD countries.¹⁶ The studies indicate that real estate markets, macroeconomic developments and monetary policy are closely interlinked. Furthermore, they show that shocks to real estate markets can lead to a decline in consumption and thus have a dampening effect on business activity.¹⁷ In the event of a recession that extends be-

¹² This applies on the assumption that credit standards throughout Germany are similar to those in the towns and cities observed.

¹³ The crisis years of 2008 and 2009 have not been included in the calculation of average pre-tax profits so as to avoid a downward bias.

¹⁴ The box entitled "An approach to explaining common fluctuations in housing prices in Germany" on pp 64-66 examines the impact of several macroeconomic variables in price developments on urban housing markets in Germany. For an estimation of structural differences in price levels in urban areas measured by the demographic and economic determinants, see Deutsche Bundesbank (2013), pp 13-29.

¹⁵ See M Iacoviello (2005).

¹⁶ See M Iacoviello (2000), C Goodhart and B Hofmann (2008), K Assenmacher-Wesche and S Gerlach (2008) and D Igan and P Loungani (2012).

¹⁷ See M Iacoviello (2011) and K E Case, J M Quigley and R J Shiller (2013).

An approach to explaining common fluctuations in housing prices in Germany

Residential mortgage loans to households account for a large share (40%) of domestic lending in Germany, and fluctuations in housing prices have a direct impact on the amount of collateral on which these loans are based. In order to be able to better assess the risks to financial stability, it is therefore imperative to have a good understanding of both the valuation of residen-

tial housing and the general dynamics behind housing prices.

Existing approaches examine the impact of macroeconomic variables on the level of fundamental housing prices.¹ There is evidence that fluctuations in housing prices exhibit common dynamics, the effects of which extend beyond regional boundaries.² This could be due to spatial contagion effects or to a common cyclical component. One way of examining the significance of the cyclical component for price changes in the German housing markets is to use a factor model, for example. This estimation approach was chosen with a view to analysing common supra-regional price fluctuations for urban housing, without regional and segment-specific effects being included in the model. Furthermore, the correlations determined here do not constitute long-term equilibrium relationships between the level of the housing prices and macroeconomic variables. This estimation approach cannot be used to make any statements about the valuation of the long-term equilibrium price level for residential housing.

The analysis presented here relates to the common price dynamics of the urban housing markets in Germany and is based on price indices calculated by the Bundesbank using data from bulwiengesa AG for the period from 1991 to

Results of a factor model for selected segments of the German housing market – state equation*

Kalman filter estimate for the observation period 1992 to 2013

Item	θ coefficient	Standard error	P-value
f(t-1)	0.252	0.141	0.07
Growth expectations	2.467	1.186	0.04
Mortgage interest rates	-1.627	0.388	0.00
Inflation expectations	5.128	1.229	0.00
Unemployment rate	-0.961	0.262	0.00
Constant	3.487	2.494	0.16

Sources: Bundesbank calculations based on data from bulwiengesa AG, the Federal Employment Agency and Consensus Forecast.

* Determinants of housing price changes, calibrated for a $\beta = 1$ for freehold apartments up for resale in cities with more than 500,000 inhabitants.

According to the results of the state equation, a 1 percentage point (pp) increase in long-term growth expectations would lead to a 2.5 pp increase in the common price factor. A 1 pp increase in long-term mortgage interest rates or in long-term inflation expectations reduces or increases the general price factor by 1.6 pp or 5.1 pp in the same year. At the same time, a 1 pp increase in unemployment leads to a 1 pp decline in the general price factor.

Deutsche Bundesbank

¹ See F Kajuth, T A Knetsch and N Pinkwart, Assessing house prices in Germany: Evidence from an estimated stock-flow model using regional data. Deutsche Bundesbank Discussion Paper, No 46/2013.

² See Deutsche Bundesbank, The determinants and regional dependencies of house price increases since 2010. Monthly Report, October 2013, pp 13 ff.

2013. The annual price indices are shown separately for various segments, such as new or existing houses and apartments in cities with fewer than 250,000 inhabitants, in cities with 250,000 to 500,000 inhabitants and in cities with more than 500,000 inhabitants. The indices are adjusted to take account of general price developments and are converted into annual rates of price increase.

Using a Kalman filter, a common factor f_t is isolated from the time series for the subaggregates, which is set in relation to the macroeconomic variables X_t , such as longer-term GDP growth expectations, the unemployment rate, the mortgage interest rate and longer-term inflation expectations.³

In methodological terms, this approach estimates a state equation (1, see the table on page 64) and an observation equation (2, see adjacent table).

$$(1) f_t = c + \gamma f_{t-1} + \theta X_t + \epsilon_t$$

$$(2) \Delta P_t/P = \beta f_t + \omega_t$$

where f_t denotes the common unobserved cyclical price change factor, X_t is the vector of the exogenous macroeconomic variables, $\Delta P_t/P$ is the vector of the percentage changes in housing prices – adjusted by their mean – in the various (sub)segments of the German urban housing market, and ϵ_t and ω_t are error terms

³ An upstream principal component analysis yields an explanatory power of 79% of the first principal component for the inflation-adjusted price changes of all data series. Owing to the high-level explanatory power of the first principal component, its development over time is very similar to that of the price aggregate of the total 125 towns and cities examined.

Results of a factor model for selected segments of the German housing market – observation equation*

Kalman filter estimate for the observation period 1992 to 2013

Type of housing	β coefficient	Standard error	P-value
Freehold apartments in cities with fewer than 250,000 inhabitants, re-sale	0.810	0.061	0.00
Freehold apartments in cities with 250,000 to 500,000 inhabitants, re-sale	0.746	0.082	0.00
Terraced houses in cities with 250,000 to 500,000 inhabitants, new buildings	0.435	0.068	0.00
Freehold apartments in cities with more than 500,000 inhabitants, re-sale	1.000	(normalised)	.
Freehold apartments in cities with more than 500,000 inhabitants, new buildings	0.618	0.131	0.00
Terraced houses in cities with more than 500,000 inhabitants, re-sale	0.500	0.039	0.00
Terraced houses in cities with more than 500,000 inhabitants, new buildings	0.475	0.081	0.00

Sources: Bundesbank calculations based on data from bulwiengesa AG, the Federal Employment Agency and Consensus Forecast. * Explanation of the individual series using the estimated factor from the state equation, β relative to freehold apartments up for resale in cities with more than 500,000 inhabitants. The impact of a change in the general price factor on the individual segments can be estimated using the β coefficients. According to the results of the observation equation, the price changes for apartments are far more strongly influenced by the common cyclical factor than are the price changes for terraced houses (β coefficients of 0.6 to 1.0 compared with 0.4 to 0.5). Terraced houses in smaller cities are therefore far less affected by cyclical fluctuations than the most dynamic segment, which is apartments for resale in large cities. The estimated overall effect of the individual macroeconomic variables on the various segments could be calculated by multiplying the respective θ and β coefficients. It should be noted, however, that the spillover effect of the common component (β coefficient) is to be interpreted as a condensed measure of the individual effects stemming from the various macroeconomic variables. An arithmetical assignment to the individual determinants could imply that the relationship between the price changes and their common factor applies uniformly to the individual macroeconomic determinants.

with the usual distribution assumptions.⁴ The θ coefficients describe the relationship between the macroeconomic variables and the common cyclical price factor, whereas the β coefficient reflects the varying impact of the factor on the various segments.

On the whole, the results illustrate the importance of the common cyclical price factor. The common price cycle has a positive correlation with GDP growth expectations and a negative correlation with the unemployment rate and the interest rate level. The various market segments react in varying degrees to fluctuations of the common price component. Through the common price cycle, however, an interest-rate reversal or a deterioration in the macroeconomic situation could result in a severe slow-

down in price dynamics on the urban housing market in Germany.

⁴ In order to normalise the estimation, the β coefficient of the rate of price increase of the most dynamic segment, which is existing apartments in cities with over 500,000 inhabitants, was set to the value of one. The β coefficients of the other time series are thus to be interpreted in relation to this segment.

yond the real estate sector or of a general financial crisis, cumulated losses could considerably impair banks' internal capital adequacy.

Improved data availability crucial for identifying build-up of risk and for effective risk management

The Bundesbank constantly monitors and analyses whether there are any risks to financial stability stemming from the housing market. If the current perception of risks changes, there are a number of macroprudential instruments that can be deployed. Improved availability of data on the fi-

Quantitative indicators of credit standards, such as the share of a real estate purchase financed by borrowed funds, should play a greater role and be collected regularly in future.

nancing of housing purchases can reduce the danger of risks not being detected in good time. Existing indicators of credit standards, such as the BLS, which are collected on a regular basis, are largely based on qualitative data provided by the banks and have a number of shortcomings from a macroprudential perspective. Quantitative indicators of credit standards, such as the share of a real estate purchase that is financed by borrowed funds, are likely to be better suited to identifying a build-up of risk. Therefore, in the future, such indicators should be collected at regular intervals.

For the purpose of macroprudential oversight, it has also proved necessary to harmonise the concept used for measuring the share of borrowed funds when evaluating risk to enable cross-sectional comparisons to be made. Due to the fact that the haircuts used when calculating the mortgage lending values vary from region to region, it is almost impossible to

conduct cross-sectional analyses of borrowed funds based on German sustainable LTV ratios. They only allow for a rough estimation of changes over time. Furthermore, information about additional collateral, in particular for loans with a high German sustainable LTV ratio, is of interest.

Indicators of a borrower's debt-servicing capacity (ratio of debt servicing to disposable income) are extremely hard to come by and, where they are available, can only be used to a limited extent for macroprudential analysis since credit institutions use varying calculation methods. However, the available data indicate that the debt-servicing capacity of borrowers who have taken out loans with a high German sustainable LTV ratio is no better than that of average borrowers. This means that loans with a high level of borrowed funds have been granted not only to customers for whom the monthly rate of repayment does not pose a major strain in comparison with their income. If data on debt-servicing capacity are to be collected on a regular basis in future, the data collection concept should be harmonised.

What should be noted as a general principle is that both average values and information about the distribution of data characteristics are of key importance in assessing financial stability.

It is in the banks' own interest to examine whether the data they collect and store are sufficient to adequately detect and quantify risks in their loan books.

So far, banks have not been required to store data that are relevant for analysing systemic risk in their IT systems. Given the rapid pace of development on the housing market, such information is of major relevance from a macroprudential perspective. It is in the banks' own interest to examine whether the data that they collect and store are sufficient to adequately detect and quantify risks in their loan books stemming from macroeconomic developments.

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Implications of the banking union for financial stability

The European banking union is an important and necessary extension of monetary union. It comprises three pillars: the Single Supervisory Mechanism (SSM), the Single Resolution Mechanism (SRM) and a common deposit guarantee scheme. With these pillars in place, the banking union not only strengthens microprudential supervision but also makes it possible to increasingly involve shareholders and creditors of ailing banks in bearing a share of any losses.

The SSM is able to apply stringent uniform supervisory standards and practices as well as draw cross-border comparisons. The extra degree of separation between the SSM and the institutions it oversees, compared with banking supervision at the national level, allows for a more objective evaluation of their situation, while the transfer of additional macroprudential powers to the European Central Bank (ECB) focuses attention on the financial system as a whole and enhances its ability to counteract systemic risks.

When the SRM is launched, improved tools will also be available in future for the recovery and resolution of failed banks. This represents an important step towards solving the too-big-to-fail problem. Key to this is the principle of bailing in shareholders and creditors to bear the costs of a bank's recovery or resolution, with government funds only being used as a last resort. When addressing legacy risks, precedence must be given to private over public funds, and to national over mutualised funds.

Establishing a common deposit guarantee scheme furthers the integration of the single market, with harmonised deposit guarantee schemes and greater transparency providing additional protection for savers and strengthening confidence in the banking system. However, a single European deposit guarantee scheme is not envisaged in the near future. This is appropriate because the functioning of deposit guarantee schemes is always ultimately contingent on government backstops, which remain a national responsibility.

Launch of SSM furthers integration of European financial market

The SSM, which was launched on 4 November 2014, makes it possible to apply uniform prudential standards to all participating member states.¹ A distinction is drawn here between significant institutions under direct ECB supervision and less significant institutions that remain under the principal supervision of the national supervisory authorities.

From a financial stability perspective, it is important that the ECB is also able to assume direct supervision of smaller, regional institutions, if required. In this way, it is possible to guarantee uniform supervision of the entire banking system by the ECB as well as, for example, ensuring that no risks posing a threat to financial stability can arise as a consequence of herding behaviour among smaller institutions. Moreover, joint supervision minimises the danger of supervisors developing a cosy relationship with “their” banks and thus treating them leniently out of national interest.

The SSM is able to bundle at the European level information that has up to now only been available to national supervisors and use this as a basis for drawing

Introducing a European overview of the national banking systems means that risks should be identified faster and better in future – especially those in banking groups operating at a multinational level.

cross-border comparisons, which had previously not been possible. A key aspect for macroprudential supervision and analysis is the attention that can now be focused on any negative feedback effects between individual member states. This applies, in particular, to the close ties between European credit institutions and the cross-border effects of banking crises (see Chart 1.9 on page 29). Introducing a European

overview of the national banking systems means that risks should be identified faster and better in future – especially those in banking groups operating at a multinational level. Against this background, the ideal situation would be for non-euro-area European countries to opt in to the SSM as well.

National supervisors – including the Bundesbank – will continue their work in joint supervisory teams, which comprise members of staff from the ECB and the national authorities. This ensures that national supervisors can contribute their specialised expertise. It will also create cross-border transparency with respect to disparities in legal systems and administrative practices.

Macroprudential policy is strengthened, ...

The ECB acquired macroprudential powers when the SSM was launched. Responsibility for the implementation of macroprudential tools will largely remain at the national level, as the national authorities possess specialist knowledge of their financial systems and are able to carefully target and respond to unsound developments in their countries. Furthermore, many macroprudential tools can only be implemented at the national level, eg restrictions on loan-to-value ratios (LTVs) in mortgage lending. At the same time, as national governments are the first to foot the bill of a systemic crisis, responsibility for macroprudential policy should also rest squarely with them.

However, the ECB has the power to tighten national macroprudential measures and to require the application of certain macroprudential tools.² Unlike the European Systemic Risk Board (ESRB), which has

¹ See also the box entitled “Conceptual and legal framework of the European Single Supervisory Mechanism” on pp 72-74.

² The Capital Requirements Directive IV (CRD IV) and the Capital Requirements Regulation (CRR) provide a range of macroprudential tools for the banking sector. See Deutsche Bundesbank (2013), pp 97-104.

non-binding tools at its disposal in the form of warnings and recommendations, the ECB is thus able to employ binding tools. The ESRB is responsible for all EU member states and the overall EU financial system, whereas the SSM solely oversees the banks in participating member states – this explains why the two bodies have differing rights with respect to the application of tools.

Entrusting the ECB with the power to also intervene in macroprudential policy at the European level is a logical complement to national macroprudential policy in SSM countries. There was previously a danger of delays or inaction on the part of national authorities when their regulatory requirements needed tightening, resulting in risks for other member states (inaction bias). The ECB can now use its new powers to counter this danger.

... but several questions remain unanswered

The SSM has been incorporated into the existing institutional and organisational structure of the ECB.³ While this move allowed European-level banking supervision to be introduced swiftly, it is fraught with a number of legal and institutional problems. Within the scope of its new mandate, the ECB is responsible for three areas which overlap to some extent: monetary policy together with the microprudential and macroprudential supervision of banks. Prevailing European primary law does not allow sufficient institutional separation of banking supervision and monetary policy at the level of the decision-making bodies, as the ECB Governing Council must bear ultimate responsibility for all mandates conferred upon the ECB.

The solution that has been found, which involves a Supervisory Board (SB) and a Mediation Panel, seeks to establish a functional separation of the ECB Governing Council's prudential supervisory responsibility from its monetary policy mandate. This mitigates the

conflict of interest between supervision and monetary policy, but it does not remedy it. Ultimately, the EU treaties would need to be amended in order to fully resolve the conflict of interest. In this way, the participation of non-euro EU countries that have

no voting rights in the ECB Governing Council could also be better regulated. Due to its dual responsibilities, the ECB Governing Council is forced to balance potentially divergent objectives and interests. The ECB's supervisory function must not diminish the importance of price stability as the primary objective.

However, a change to primary law is not likely in the near future. As such, it will remain necessary to maintain a rigid separation between monetary policy and microprudential tasks within the existing structures in order to minimise conflicts of interest. Decision-making processes should be transparent and objectively comprehensible. As the ECB possesses sovereign powers of intervention with respect to banking supervision, its reporting and accountability obligations vis-à-vis the European Parliament and national parliaments are of particular importance.⁴

The ECB's supervisory function must not diminish the importance of price stability as the primary objective.

³ Article 127 (6) of the Treaty on the Functioning of the European Union (TFEU) forms the legal basis for this. It states that special functions concerning policies relating to the supervision of credit institutions and other financial institutions can be conferred upon the ECB.

⁴ See also Council Regulation (EU) No 1024/2013 of 15 October 2013, Articles 20 and 21.

Conceptual and legal framework of the European Single Supervisory Mechanism

On 29 June 2012, the euro-area heads of state or government called for the establishment of a single supervisory mechanism as a condition for enabling the European Stability Mechanism (ESM) to recapitalise banks directly. In this context, the member states reached a political compromise on the architecture of the future ESM direct recapitalisation instrument (DRI). It was agreed that fiscal means would only be used once owners and shareholders and the newly created resolution fund have already shouldered sufficient losses. Furthermore, national financial resources and the ESM's indirect recapitalisation instrument¹ shall take precedence over directly recapitalising banks.

On 12 September 2012, the European Commission presented a draft regulation on the establishment of a Single Supervisory Mechanism (SSM). Following completion of negotiations and the adoption by the Council on 15 October 2013, the SSM Regulation entered into force on 3 November 2013.² The European Central Bank (ECB) assumed responsibility for the supervision of banks in the euro area on 4 November 2014.

The legal basis chosen for the SSM Regulation is Article 127 (6) of the Treaty on the Functioning of the European Union (TFEU), which stipulates that the ECB may be conferred with "specific tasks"

relating to the prudential supervision of banks. The practical modalities for cooperation between the ECB and national competent authorities (NCAs) under the SSM were specified in an SSM Framework Regulation adopted by the ECB Governing Council in April 2014.³

The SSM's remit extends to all commercial and deposit-taking banks in the euro area. Other EU countries can opt into the SSM.

The SSM Regulation confers supervisory responsibility on the ECB for all banks within the jurisdictional reach of the SSM. However, the ECB will not perform all supervisory tasks itself, but will instead work in cooperation with the NCAs.

The ECB took on direct microprudential responsibilities on 4 November 2014, initially for the 120 banks identified as significant. The microprudential supervision of less significant banks will remain the responsibility of national competent authorities. Institutions are classified as significant or less significant according to several criteria relating to their size, economic importance and the significance of their cross-border activities. The following banks are considered significant: the three largest banks in each participating member state, banks in receipt of EFSF/ESM assistance, plus banks with total assets in excess of €30 billion or in excess of 20% of national gross domestic product. National supervisors may, at their own discretion, classify other banks as significant. If the ECB shares this opinion, it will take over direct microprudential supervision of the bank in question. The ECB may also, on its own initiative, classify an institution as signifi-

¹ Where a bank is recapitalised indirectly, the member state in question is liable for the disbursed funds, with loans usually being made subject to reforms.

² See Council Regulation (EU) No 1024/2013 of 15 October 2013.

³ See European Central Bank (2014), Regulation of 16 April 2014 (ECB/2014/17).

cant if the institution in question has established banking subsidiaries in more than one member state and if its cross-border assets and liabilities represent a significant part of its total assets and liabilities.

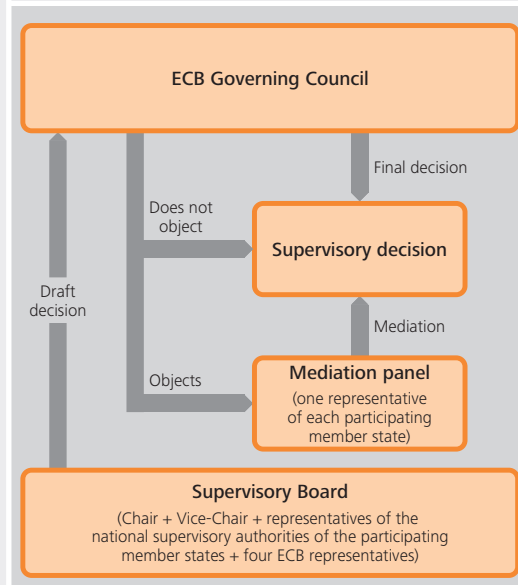
Overall, the ECB is responsible for ensuring coherent and high-quality microprudential supervision of all the banks under its direct and indirect supervision. In order to safeguard this, the ECB can, in principle, exercise direct supervision of any bank on a case-by-case basis.

National supervisors provide the ECB with information on the significant banks on a preparatory basis. In addition, joint supervisory teams (JSTs) are being set up for each significant bank. These will be led by the ECB and are comprised of staff from the ECB and the NCAs.

The less significant institutions will, for the most part, continue to be supervised by the NCAs. In this context, the supervisory powers of the NCAs extend beyond operational activities. With a few exceptions (licensing decisions, qualified participating interests), the NCAs also make microprudential decisions. The ECB receives regular reports from the NCAs. If the ECB deems corrective action to be necessary, it has various tools at its disposal. These range from issuing general instructions to taking over responsibility for the direct supervision of a given institution.

The new microprudential powers needed to be integrated into the ECB's existing governance structure. The aim was to segregate monetary policy and banking supervision in as complete and as strict a manner as possible. However, European primary law places limits on what is possible in this regard. A Supervisory Board

Basic decision-making framework of the SSM



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was therefore set up to “fully” undertake the planning and execution of the supervisory tasks conferred on the ECB. The Supervisory Board prepares individual draft decisions which are then submitted to the ECB Governing Council for adoption. They are deemed to be adopted if the ECB Governing Council does not object (non-objection procedure). The Supervisory Board does not have the power to adopt supervisory decisions itself. This would contravene the institutional structure of the ECB enshrined in primary law, which stipulates that the Governing Council is the supreme decision-making body of the ECB. The non-objection procedure does not, however, apply to decisions regarding the general framework for supervisory decisions, such as the SSM Framework Regulation. In such cases, decisions are taken by the ECB Governing Council in its regular decision-mak-

ing procedure. A Mediation Panel has been set up to resolve potential differences of opinion between the individual NCAs in the event that the Governing Council objects to a draft decision by the Supervisory Board (see the chart on page 73).

Good progress has also been made on the second pillar of the banking union, the Single Resolution Mechanism (see the box entitled “Conceptual and legal framework of the European Single Resolution Mechanism” on pages 75 and 76). The third pillar is the harmonisation of European deposit guarantee schemes. While there will not be a single deposit guarantee scheme for the foreseeable future, the reform of the Deposit Guarantee Schemes Directive adopted in April 2014 does harmonise requirements for national

deposit guarantee systems in the European Union.⁴

⁴ See Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014.

SSM to be complemented by SRM

With the SSM in place, the SRM, which builds on the Bank Recovery and Resolution Directive (BRRD),⁵ will be granted full powers from 2016 onwards as the second pillar of the banking union.⁶

The main objective of the SRM is to mitigate moral hazard arising from implicit government guarantees

The main objective of the SRM is to mitigate moral hazard arising from implicit government guarantees for credit institutions as credibly as possible.

for credit institutions as credibly as possible.

In the past, large, complex, international institutions, in particular, could rely on being bailed out by governments if they failed, as

they could not be resolved without this having a sig-

nificantly adverse effect on financial stability (the too-big-to-fail problem). These implicit guarantees not only led to competitive distortions but also became a major moral hazard. They tempted the banks in question to engage in excessive risk-taking which, as the financial crisis has shown, can pose a threat to financial stability. From a financial stability perspective, it is essential to minimise this moral hazard. The International Monetary Fund (IMF) puts the existing funding advantages of large, internationally interconnected banks for the euro area in 2013 as a re-

⁵ See Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014. The BRRD harmonises the legal framework for bank resolutions in the EU. The launch of the SRM will bring with it institutional rules for SSM countries. See also the box entitled “Conceptual and legal framework of the European Single Resolution Mechanism” on pp 75-76.

⁶ Although the SRM Regulation will come into force in 2015, the Single Resolution Board (SRB) will not commence work fully until 2016. For more information on regulations during the transition period, see also the box entitled “Dealing with capital shortfalls under the transitional arrangements in 2015” on pp 78-79.

Conceptual and legal framework of the European Single Resolution Mechanism

In July 2013, the European Commission presented the first draft of a regulation for the Single Resolution Mechanism (SRM). The aim of the SRM is to efficiently restructure or, where necessary, resolve failing banks without costs to the taxpayer. On 15 July 2014, the Regulation establishing a Single Resolution Mechanism (SRM Regulation) was adopted by the European Parliament and the Council.¹ The SRM can therefore commence operations at the beginning of 2015, but will not have full resolution powers until 1 January 2016.

The SRM Regulation is based on the Bank Recovery and Resolution Directive (BRRD), which was adopted earlier this year.² The BRRD harmonises substantive resolution law and must be transposed into national law by member states by 2015.³ The SRM Regulation establishes a uniform institutional decision-making framework for the use of tools created by the BRRD. While the BRRD affects all deposit-taking credit institutions and investment firms established in the EU, the SRM Regulation applies only to those banks domiciled in member states which are participating in the Single Supervisory Mechanism (SSM).

The SRM consists of two elements – the Single Resolution Board (SRB) and the Single Resolution Fund (SRF). The SRB was established as a European agency and is recognised as an independent legal entity. The problem is that prevailing European primary law does not permit the creation of an independent resolution authority with extensive decision-making powers.⁴ The SRM Regulation therefore envisages that resolution schemes developed by the SRB will only enter into force if neither the European Commission nor, where appropriate, the Council has raised any objections

to them within 24 hours. Should either institution raise an objection, the SRB will be obliged to modify the resolution scheme within eight hours. However, in light of the substantial interventions that are possible under the resolution powers conferred on the SRB, it cannot be ruled out that the legitimacy of delegating decision-making powers to the SRB will be made the subject of a legal review. It would therefore be desirable for the SRB and its powers to be enshrined in the treaties of the European Union.

The SRB makes decisions regarding the resolution of all banks subject to direct ECB supervision and of other groups of banks with subsidiaries in other participating member states, as well as in cases where member states have transferred responsibility for resolution to the SRB. The SRB will adopt a resolution scheme which stipulates the measures to be taken in the event of resolution and which must be implemented by the national resolution authority. Any use of SRF funds must likewise be based on an SRB resolution scheme. If the SRF is not used, responsibility for less significant banks,

¹ See Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014.

² The rules of the BRRD apply from 2015; the bail-in tool needs to be implemented in national law by the beginning of 2016. It can, however, be introduced in member states earlier on a voluntary basis. See Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014.

³ In Germany, the BRRD is being implemented through the Act on the Recovery and Resolution of Institutions and Financial Groups (Gesetz zur Sanierung und Abwicklung von Instituten und Finanzgruppen, Recovery and Resolution Act) and through amendments to existing laws. See Deutsche Bundesbank, Monthly Report, June 2014, pp 31-35.

⁴ The Meroni doctrine dictates that only EU institutions enshrined in primary EU law have the power to take decisions implying a wide margin of discretion. See case-law of the European Court of Justice, starting with the ruling of 13 June 1958-9/56, June 1958.

which the SRB does not have the authority to resolve, lies with the national resolution authorities.

The SRB will operate in two sessions: an executive one and a plenary one. The executive session will consist of the Chair and four other members. In addition, one permanent member and one deputy from both the ECB and the European Commission will also have permanent observer status. The resolution authorities in those member states in which the relevant institution operates will also be able to take part in the executive session. Decisions are to be made by consensus. If no agreement is reached within a specified period, a decision will be made by simple majority without the involvement of the relevant national resolution authorities.

The plenary session will consist of the executive session plus representatives of the national resolution authorities. The plenary session will discuss and decide on general policy issues, such as the adoption of the SRB's annual budget and alternative funding options for the SRF. The plenary session's approval will also be required in individual resolution cases where the use of the SRF exceeds €5 billion or where at least €10 billion in liquidity support is to be granted. The plenary session will take its decisions by simple majority; each member will have one vote. In the event of a tie, the Chair will have the casting vote.

The SRB also administers the SRF. The target funding level for the SRF is 1% of the covered deposits of all credit institutions authorised in all participating member states. This currently corresponds to around €55 billion. The SRF is to be built up over eight years. All supervised entities which fall within the scope of the SSM pay into the SRF via a bank levy, irrespective of whether or not they are supervised directly by the ECB. The fund will initially consist of national compartments, and lia-

bility will be gradually mutualised over time. Only after the eight-year transition period will the national compartments be merged into a single, fully mutualised fund. As the use of national financial resources does not fall within the scope of EU law, this process has been mapped out in an intergovernmental agreement (IGA). A situation may arise in which, even after shareholders and creditors have been bailed in, the SRF still has insufficient funds to cover all costs arising from a banking crisis. In this case, the SRB can levy *ex-post* contributions or borrow funds through other financing facilities. Under the SRM Regulation this type of borrowing will not be borne by public funds. In a severe financial crisis, it could therefore prove difficult for the SRB to raise private loans with an appropriate interest rate. In such circumstances, public financing facilities, ie lending via national budgets or the European Stability Mechanism (ESM), can be considered within the scope of the rules applicable for recourse to the ESM.

However, the US savings and loan crisis of the 1980s shows that this is not unproblematical for the public sector. Back then, the guarantee fund of the Federal Savings and Loans Insurance Corporation (FSLIC) was not sufficient to cover the cost of the crisis and had to be shored up by treasury loans. Ultimately, US\$124 billion of the total cost of the crisis (some US\$153 billion) was borne by the US taxpayer. The losses borne by the industry itself, meanwhile, amounted to only US\$29 billion.⁵ It is therefore still not possible to rule out the use of public funds to stabilise the banking sector in the event of a systemic crisis, and associated losses for the European taxpayer, even if risks have decreased markedly since 2008.

⁵ See T Curry and L Shibut (2000), *The Cost of the Savings and Loan Crisis: Truth and Consequences*, FDIC Banking Review, December 2000, p 33.

sult of these implicit government guarantees at 60 to 90 basis points or – expressed in absolute terms – at between US\$90 billion and US\$300 billion.⁷ In its latest report, the German Council of Economic Experts also stated that the funding advantages arising from implicit guarantees remain significant for European banks. While they have decreased to a certain extent since the end of 2010, they have barely shrunk in financially strong countries.⁸

The new SRM will put in place various tools that are designed to enable banks to be recovered or resolved, irrespective of their size, complexity or interconnectedness.

Mechanisms for the prevention of government bail-outs

To credibly ensure that investors themselves bear the risk of their decisions in future, the BRRD and SRM Regulation provide for several tools which are intended to reduce the need for government intervention to a minimum. Up to now, public funds have been used to stabilise banks in cases where their insolvency would have posed a threat to the stability of the financial system or led to macroeconomic disruptions. This led to a situation in which investors were able to amass profits, while socialising losses. This is set to change under the new rules.

The BRRD provides for the creation of four new recovery and resolution tools.⁹ First, the sale of business tool, which enables business activities to be sold to another institution. This facilitates the continuation of critical functions by a different institution. The second option is that a bridge institution can be established. This is used to transfer some or all of the shares of the institution under resolution, or some or all of its assets, rights or liabilities, in order to maintain the institution's critical functions. The difference between this tool and the sale of business tool is that

the resolution authority establishes and operates the bridge institution specifically for this purpose. Third, assets can be separated. Here, too, assets, rights or liabilities are transferred to a recipient controlled by the resolution authority, in this case, however, with the aim of an eventual sale or orderly winddown (bad bank). Fourth, the resolution authority can make use of the important bail-in tool.

The bail-in tool determines the share of restructuring costs and losses to be shouldered by shareholders and creditors in the event of a bank failure.¹⁰ Based on a defined liability cascade, first owners, then creditors of subordinated and unsecured liabilities will have to

The bail-in tool determines the share of restructuring costs and losses to be shouldered by shareholders and creditors in the event of a bank failure.

compensate for capital shortfalls from 2016 onwards (see Chart 4.1 on page 81). These are followed by other eligible liabilities (such as senior bonds) and deposits of natural persons and small and medium-sized enterprises (SMEs) in excess of the deposit guarantee threshold. Last in the cascade are deposit guarantee schemes.¹¹

If the available bail-in capacity is not sufficient, recourse can be made to funds from the European Single Resolution Fund (SRF), which is financed by

⁷ See International Monetary Fund (2014a), chapter 3.

⁸ See German Council of Economic Experts (2014), pp 171 ff.

⁹ See Deutsche Bundesbank, Monthly Report, June 2014, pp 37 f.

¹⁰ Whereby the principle applies that creditors shall be left no worse off following the application of the bail-in tool than they would have been in the event of insolvency. While the BRRD generally applies from 2015, the bail-in regulations do not have to be implemented until 2016. They will be implemented in Germany as of 1 January 2015.

¹¹ In terms of compensation, deposit guarantee schemes are liable for deposits up to the order of magnitude they would have had to cover in the event of insolvency. This ensures that deposits protected under the harmonised European-wide statutory deposit guarantee schemes are excluded from the bail-in. This applies to eligible liabilities up to the current ceiling of €100,000 per depositor and per institution.

Dealing with capital shortfalls under the transitional arrangements in 2015

The institutional framework for the banking union in the euro area is shaped by the time sequence in which its individual components, ie the SSM and the SRM, come into force. At all events, in the period up to 1 January 2016 this raises questions about how to deal with any capital shortfalls that arise at banks subject to the Single Supervisory Mechanism (SSM).

The SSM under the aegis of the European Central Bank (ECB) took up its supervisory role on 4 November 2004. At present as well as for the coming year, no single institutional framework is in place for the possible recapitalisation and resolution of the banks in the SSM. Instead, a combination of partly harmonised national law and EU state aid rules is to be observed. Uniform Europe-wide sets of rules on bank recapitalisation and resolution will be created with the EU Bank Recovery and Resolution Directive (BRRD),¹ which will be generally implemented and enter into force in the member states by 1 January 2015. The BRRD does, however, grant the member states a longer deadline for implementation especially with regard to the bail-in provisions, which will come into force not later than 1 January 2016, and which will probably also be used to the full by a number of member states. Finally, the Single Resolution Mechanism (SRM)² for the resolution of banks in the SSM will not have its full powers until 1 January 2016; the Single Resolution Fund (SRF) will also be built up in stages only from 2016 onwards. If SSM banks have to use public funds for a recapitalisation, European rules on state aid are to apply. The European Commission issued a Banking Communication on this subject on 1 August 2013 which contained

provisions on the conditions for authorising such financial support.

For the immediate future, therefore, the use of public funds for a recapitalisation or resolution of banks in the SSM will have to take account of differing legal frameworks; the way in which these interact is described briefly below.

EU state aid rules, which apply if a bank receives public funds for the purpose of recapitalisation or resolution, apply independently of the timing of the capital injection. In this respect, the European Commission's Banking Communication provides for certain investors, as a rule, having to share the burden before state aid can be classified as compatible with the rules on state support. This requires appropriate instruments to be in place at national level. The member states should therefore ensure that the bank's shareholders as well as its subordinated creditors make the contributions required of them. In Germany, it will already be possible to carry out a bail-in from 1 January 2015 with the entry into force of the BRRD Implementation Act (*Umsetzungsgesetz*).³

Irrespective of the application of EU state aid rules, under the BRRD any provision of public financial support may, as a rule, trigger the criterion for determining that a bank is "failing or likely

¹ See Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014.

² See Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014.

³ See Act implementing Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 (Gesetz zur Umsetzung der Richtlinie 2014/59/EU des Europäischen Parlaments und des Rates vom 15. Mai 2014).

to fail”.⁴ With the entry into force of the BRRD on 1 January 2015, European legislation will have to be complied with in this context – with the exception of the bail-in tool unless implemented earlier at national level. In particular, certain equity instruments have to be written down and/or certain debt instruments have to be converted into equity. This rule also has to be implemented in those countries making use of the transitional bail-in provisions. Public recapitalisations after 1 January 2015 therefore have to comply with both EU state aid rules and the relevant provisions of the BRRD.

Nevertheless, not every instance of granting public financial support automatically triggers the resolution of the bank concerned. One major exception to this is “precautionary recapitalisation”. The conditions for approving a recapitalisation that is only precautionary are defined in the BRRD. The institution has to be solvent; the measures have to be of a precautionary and temporary nature and be proportionate to remedy the consequences of serious disturbances to the economy of a member state and to safeguard financial stability. Furthermore, the public funds injected for the purpose of recapitalisation are not to be used to offset losses or close capital shortfalls that the institution has incurred or is likely to incur in the near future. If these conditions are met, it is solely EU state aid rules that apply.

Major changes will come into effect as of 1 January 2016. First, the Single Resolution Mechanism (SRM) will apply; second, the tools of the BRRD, including the bail-in instrument, will come into full force. Furthermore, if other tools are not sufficient to finance resolution, financial resources from the restructuring fund (SRF)⁵ may be used. However, this is conditional on private investors

bearing at least 8% of the institution’s total liabilities. Additionally, EU state aid rules are also to be adhered to beyond 2015.

Until the legal framework for the recapitalisation and resolution of banks provided by the SSM enters into full force at the start of 2016, individual parts of the BRRD, the EU state aid rules as well as, in some case, national legal provisions on bailing in creditors will apply simultaneously. At present, provision for a creditor bail-in does not exist in all the member states; not all countries have set up a restructuring fund financed by bank levies or made available public resources for crisis resolution in funds, such as the Federal Financial Market Stabilisation Agency (FMSA) in Germany. It will therefore be vital for all countries to ensure that adequate national backstops for crisis situations are in place in 2015, too.

⁴ Moreover, other criteria – eg failure to comply with the minimum capital requirements – may result in a bank having to be recapitalised or resolved.

⁵ For the SSM countries, the Single Resolution Fund (SRF) will be built up in several stages from 2016 onwards. While Germany began to establish a national fund in 2011, similar provisions are still to be realised in some other member states.

the banks themselves. However, this is only possible under strictly defined circumstances. For example, the fund can only be used if a bail-in amounting to 8% of total liabilities, including the own funds of the institution under resolution, has been carried out.¹²

The SRF will be funded by a mandatory bank levy payable by all banks in the SSM. This will be levied at the national level from 2015, transferred to national compartments from 2016 and gradually mutualised over time. If the funds paid in are not sufficient, various options are available to cover additional requirements, eg through borrowing.¹³

The individual bank levies are intended to reflect the systemic risk arising from individual institutions. Smaller or less risky institutions will also be required

The method used to calculate the European bank levy is very complex.

to pay contributions as they, too, benefit from a stable overall system. However, the contributions these institutions have to pay

will be comparatively low to reflect the low potential risk they each present. This approach is intended to ensure that all institutions make an appropriate contribution in line with their risk profile. However, the method used to calculate the European bank levy has become very complex overall. An evaluation of its appropriateness is to be conducted in a few years' time.¹⁴ If this evaluation reveals serious deficiencies in the calculation of the bank levy, the Bundesbank believes that consideration should be given to changing the basis for calculation in the BRRD, *inter alia* with a view to simplifying the method used.

If, after attempts to absorb losses through shareholders and creditors, SRF funds are not sufficient to avert a systemic crisis and no lenders can be found for the SRF, recourse can again be made to public funds. However, these can only be used as

a backstop in the sense of a fiscal cushion, and it is important to distinguish between national and European backstops. As a general principle, responsibility initially lies with those member states experiencing difficulties in the banking sector.

While some countries have set up specific national backstops as a precautionary measure, others plan to use budgetary resources, where necessary. Irrespective of the method used, it is important that funds are made available quickly when they are needed. If no corresponding provisions are made, there is a higher risk of having to rely on European support. Communication regarding the bail-in mechanism must therefore be credible, and exceptions must be used as sparingly as possible.

The hurdles for invoking exceptions are therefore set very high in the United States, for example. The systemic risk exception stipulates that only in cases of potential systemic risk can deviations be made from the no-bail-out principle. Every exception must be approved by a clear majority of the responsible decision-making bodies of the Federal Deposit Insurance Corporation and the Federal Reserve, and must be confirmed by the Secretary of the Treasury in consultation with the President. For such an exception to be made, a funding concept must be agreed in advance by all parties.¹⁵ This model could be applied by analogy in Europe. For example, exemption from the bail-in would only be allowed if a majority of euro-area finance ministers agreed to it.¹⁶

Recourse can only be made to public funds from mutualised European sources once national options have been exhausted. The European Stability Mech-

¹² See Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014, Article 27(7).

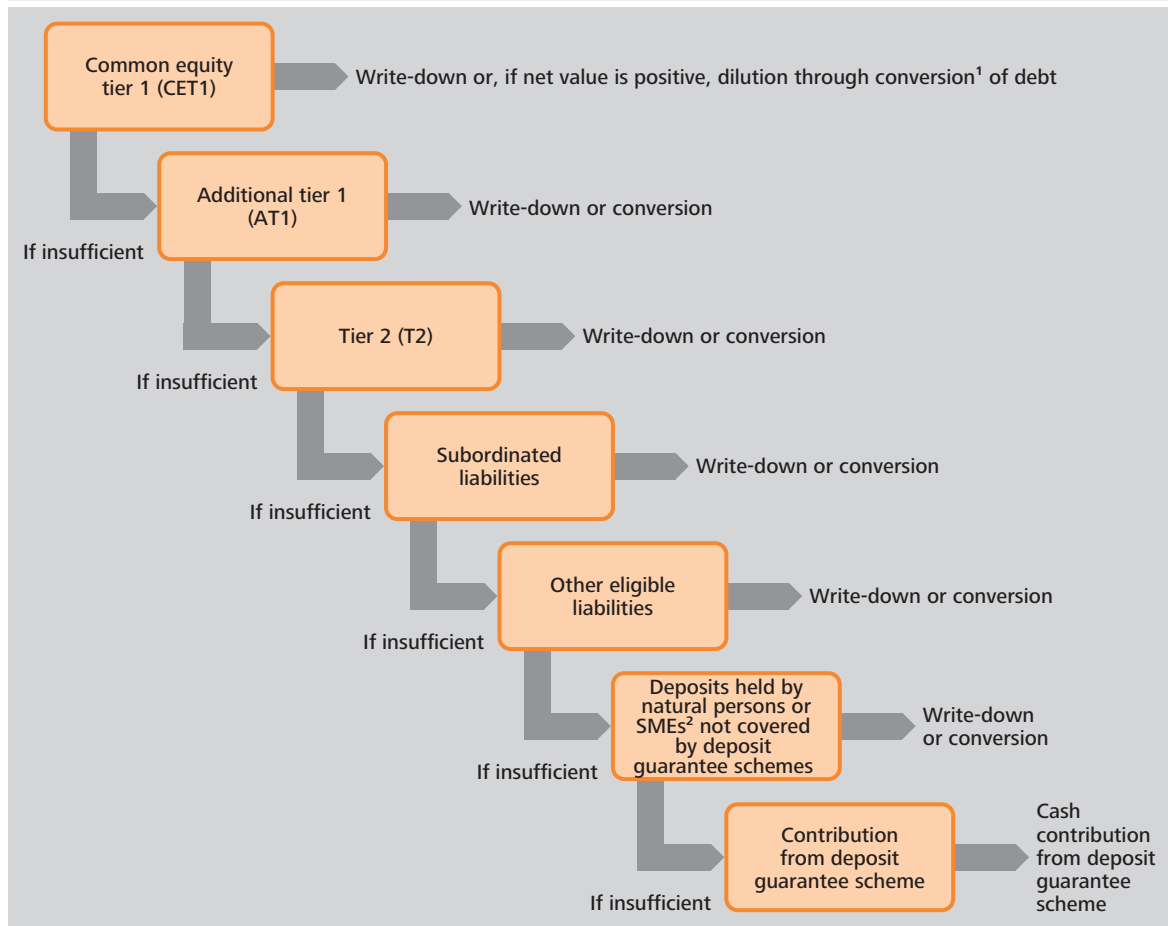
¹³ See Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014.

¹⁴ A review of risk component is planned to take place before June 2016.

¹⁵ See, for example, International Monetary Fund (2013), p 18.

¹⁶ See C M Buch, T Körner and B Weigert (2014), p 5.

Liability cascade in the Bank Recovery and Resolution Directive (BRRD) (bail-in instrument)* Chart 4.1



* Article 44 BRRD. **1** Always into CET1. **2** Small and medium-sized enterprises.
 Deutsche Bundesbank

anism (ESM) can – subject to conditions – be used indirectly at the request of a member state and, in future, directly for the recapitalisation of banks. For indirect use, which is to be the norm, responsibility remains with the relevant member state.

Recourse can only be made to public funds from mutualised European sources once national options have been exhausted.

As a last resort, the direct recapitalisation of banks will be possible in future once the amendments to the ESM Treaty have entered into force. However,

such direct recapitalisation is subject to stringent conditions. It is only possible if a bank cannot secure sufficient capital from private sources and cannot be stabilised using the member state’s own funds – including indirect recapitalisation via the ESM.¹⁷ In the long term (ie after 2024, when the SRF has been fully capitalised and the bail-in instrument has been introduced in all member states), the arguments against the direct recapitalisation of banks will weigh less heavily as, under the banking union and after the rectification of legacy risks in banks’ balance sheets,

¹⁷ See Eurogroup (2014).

joint supervision will result in a better balance between liability and control. It is crucial, however, that the tool for the direct recapitalisation of banks is made contingent on requirements to be met by the financial sector and the national economic and fiscal policy of the relevant member state, and that the latter makes the contribution required of it. Under the banking union, member states will still be able to influence developments and stability in their financial sectors through national economic and fiscal policy. National contributions and conditions therefore have an important role to play in the prevention of moral hazard and the transfer of fiscal risk.¹⁸

Discretionary scope in bail-in procedures should be used responsibly

When applying the bail-in tool, the resolution authority must be granted a certain degree of flexibility so as not to further exacerbate systemic crises. Both the BRRD and the rules on state aid therefore provide statutory¹⁹ and discretionary scope for the resolution authority or the European Commission to ensure that the tool can be used in a manner appropriate to the situation. For example, if a bail-in were to pose a threat to financial stability, the European Commission could refrain from using the tool as part of a state aid procedure. Under certain circumstances, the resolution authority could likewise completely or partially waive a bail-in for certain (classes of) creditors – for instance, if the inclusion of certain creditors could cause dislocations in the financial markets.

If discretionary exceptions to the bail-in procedure are permitted, this means that less funding capacity will be available overall, however. The resolution authority can shift the burden of the resulting funding requirements to the other creditors or draw on the SRF. If this is not sufficient, it may be necessary to take recourse to government backstops. However, these also enhance the credibility of the bail-in tool,

as the resolution of a bank is initiated more quickly and creditor participation is likely to be higher if regulations clearly state that the government will otherwise have to cover any remaining costs.

The granting of discretionary scope could potentially open the door to political influence. In the event of a crisis, and faced with potential systemic contagion risks, it is conceivable that decision-makers may face pressure to exclude certain creditors from a bail-in. A lack of transparency and uncertainty regarding exemptions can make the pricing of liabilities more difficult and, in phases of heightened uncertainty, lead to additional market volatility. Discretionary exceptions to the use of the bail-in tool should be made only in rare and strictly defined circumstances.

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Sufficient loss-absorbing capacity essential for bail-in

The credibility of the bail-in tool also depends on sufficient bail-in capacity being available at the right time, in the right place, and in the right form. This means that, in the event of resolution, the responsible resolution authority must have timely access to ample bail-in capacity. This capacity must also be sufficient to cover the cost of recovery or resolution. Assets such as real estate, which would have to be sold quickly in the event of resolution, would not be eligible as loss-absorbing capacity.

¹⁸ See C M Buch (2014).

¹⁹ The BRRD provides for legally defined exemptions from bail-in. For example, deposits in excess of the deposit guarantee threshold or interbank liabilities with a maturity of less than seven days are exempted to reduce the risk of systemic contagion in the banking system.

The BRRD therefore stipulates minimum requirements for loss-absorbing capacity in the event of resolution in the form of a minimum requirement for own funds and eligible liabilities (MREL). These apply to all institutions within the scope of application of the BRRD.

At the global level, the Financial Stability Board (FSB) is also developing a binding minimum standard for loss-absorbing capacity for resolution cases (gone-concern loss-absorbing capacity (GLAC)). In the event of a crisis, this is designed to facilitate the implementation of a predefined resolution strategy without having to resort to public funds. This new standard will initially apply to all global systemically important banks (G-SIBs) and, together with existing regulatory minimum capital requirements, will form a new comprehensive requirement (total loss-absorbing capacity (TLAC)). At their summit in Brisbane in November 2014, the G20 nations agreed on a corresponding concept, which is to be finalised and adopted following a consultation phase supported by impact studies.²⁰ The requirement needs to be sufficiently stringent to lend credence to the implementation of the resolution strategy. Because the TLAC is to be a global minimum standard, country-specific exceptions should be kept to a minimum. Moreover, it is important that the consultation process is completed in a timely manner to ensure that the minimum standard can be finalised in 2015.

Improving cross-border cooperation

Resolution measures must also function efficiently in a cross-border setting. The resolution of large, com-

Resolution measures must also function efficiently in a cross-border setting.

plex banks cannot succeed without the mutual recognition of national rules. To this end, a decisive agree-

ment was reached in October 2014 to remove obstacles to resolution for banks which are globally

active in the derivatives markets. Until now, the resolution of a bank automatically obliged the counterparties of financial contracts to exercise an early termination right if they were outside the scope of jurisdiction of the applied resolution regime. This problem became particularly apparent in the insolvency of the US investment bank Lehman Brothers. The early termination rights in respect of derivatives had the effect of accelerating the intensification of the financial crisis and were one of the main reasons why the United States used government funds to stabilise the insurance corporation AIG. Suspension of these early termination rights means that cross-border derivatives contracts are *de facto* no longer “automatically” due in the event of resolution. Hence, the FSB and the International Swaps and Derivatives Association (ISDA) jointly presented a protocol supplementing the ISDA Master Agreement, under which the majority of OTC derivatives are traded. The protocol – adherence to which is voluntary – comes into effect in 2015.²¹ This protocol seeks to ensure that termination rights can be suspended on a cross-border basis in the event of resolution. In this way, resolution authorities gain valuable time and are able to prevent potential domino effects.

According to the Recovery and Resolution Act (*Gesetz zur Sanierung und Abwicklung von Instituten und Finanzgruppen*), which transposes the BRRD into German law, the German resolution authority can order business activities to be limited or suspended if it detects obstacles to resolution in cross-border activities, especially in derivatives operations. Moreover, it can order changes to an institution’s legal and operational structures in order to reduce the bank’s complexity and to ensure that critical functions can be continued during the resolution process. The legal prerequisites are therefore

²⁰ See Financial Stability Board (2014b).

²¹ See announcement of The International Swaps and Derivatives Association entitled “ISDA Publishes 2014 Resolution Stay Protocol” of 12 November 2014.

in place in Germany to support the widest possible recognition of the supplemented ISDA rules through regulatory requirements.

Besides this institution-specific improvement in cooperation, memorandums of understanding (MoUs) have been in place between individual national supervisory authorities for quite some time. The main objective of these MoUs is to improve the exchange of information.

However, the crisis revealed that there is room for improvement in cross-border cooperation. This applies to the monitoring

The crisis revealed room for improvement in cross-border cooperation.

of big banks, in particular. An example of this is the recapitalisation of Dexia. This credit institution was

recapitalised in 2008, initially using public funds from Belgium, Luxembourg and France, which is where Dexia had its three most important branches. As things progressed, the respective governments were unable to agree on the creation of a bad bank, as they were pursuing different objectives and wished to minimise their share of the bank's resolution costs.²²

Various suggestions have been put forward on how to improve cross-border cooperation. With regard to the banking union, the German Council of Economic Experts, for example, has called for clear and binding agreements on burden sharing,²³ which should apply if bail-in and SRF funds are insufficient for the resolution of banks with cross-border activities. In accordance with the importance of the institutions, the agreements would determine *ex ante* how the fiscal burden is to be distributed among the countries affected.

Whereas such burden-sharing agreements appear feasible between SSM countries, negotiating regulations with non-SSM countries, such as the United

Kingdom,²⁴ is likely to be more cumbersome. Including non-EU countries makes matters even more complicated given that no common legal framework has been established with institutions from such countries.²⁵ However, burden-sharing agreements of this kind could ensure that sufficient funds are available for the resolution of banks with cross-border activities.

The FSB, too, is working on improving cross-border cooperation. The aim is to increase the legal certainty of cross-border resolutions. To this end, a corresponding framework was put forward for consultation by the FSB in November 2014.²⁶ At the same time, greater cooperation can only succeed if the governments and supervisory authorities involved are willing to back it not only at the planning stages but also if things come to a head. However, greater willingness can be achieved by establishing a clear set of rules from the start.

Complex decision-making structures in the SRM

From a financial stability perspective, efficient institutional foundations and decision-making structures are necessary to ensure the proper functioning of the SRM. The problem is that prevailing European primary law does not provide for the creation of an independent resolution authority with an extensive discretionary scope.²⁷ As a result, the SRM's decision-making structures have become very complex (see Chart 4.2). Considering the large number of participants that have to be consulted in the short time within which a resolution decision has to be made,

²² See International Monetary Fund (2014b), pp 25 ff.

²³ See German Council of Economic Experts (2013), pp 174 ff.

²⁴ Virtually all large European banks are active in the London banking market, which implies that the burden on the United Kingdom (in relation to GDP) would be disproportionately heavy in such a legally binding burden-sharing agreement.

²⁵ See C Goodhart and D Schoemaker (2009), pp 160-161.

²⁶ See Financial Stability Board (2014c).

²⁷ Known as the "Meroni judgement". See European Court of Justice (1958).

the effectiveness and credibility of the resolution mechanism could suffer.

The envisaged involvement of the European Commission also runs the risk of creating a conflict of interest between its role as the guardian of competition²⁸ and its responsibility in the event of resolution.²⁹ Given its dual role, the European Commission could come under political pressure to approve a resolution which infringes the principle of using public assistance as a last resort. However, this conflict of interest is mitigated by the European Commission's weakened position during the creation of the resolution scheme (which is drawn up by the SRB; the European Commission is not involved) and through the regulations on bailing in private creditors.

However, for the resolution mechanism to have a sustainable structure, European primary law needs to be adjusted in the medium term. To achieve this, the SRB ought to be enshrined in the treaties of the European Union and equipped with efficient decision-making structures.

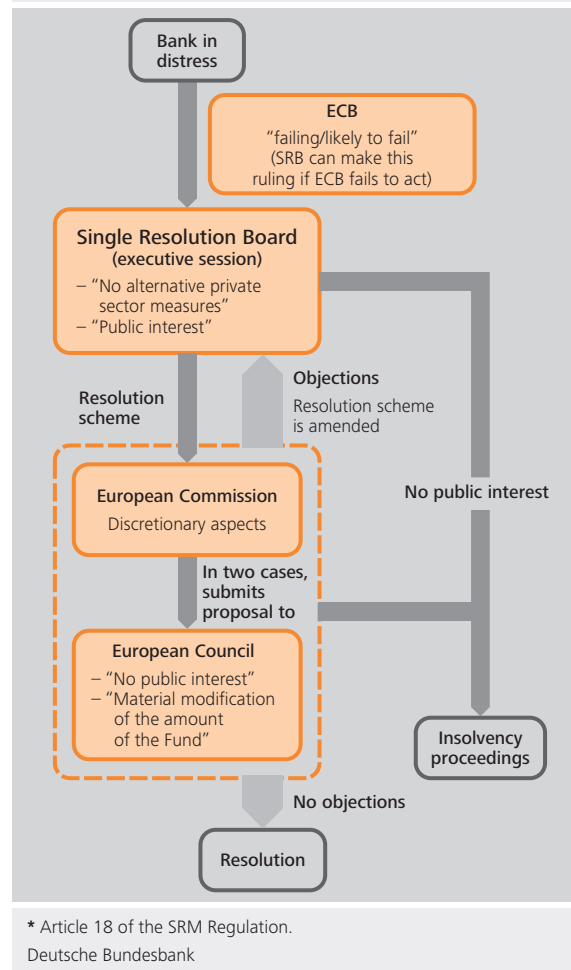
However, for the resolution mechanism to have a sustainable structure, European primary law needs to be adjusted in the medium term.

Improved recovery and resolution rules also for non-banks

Recovery and resolution regimes require improvement beyond the banking sector. This concerns central counterparties (CCPs), in particular, for which the Committee on Payments and Market Infrastructures (CPMI)³⁰ and the International Organization of Securities Commissions (IOSCO) have introduced guidelines for potential recovery or resolution cases in their Principles for financial market infrastructures.³¹ Additional guidelines were published on 15 October 2014; one on recovery by CPMI/IOSCO and another on the resolution of financial market structures by

Decision-making process in the Single Resolution Mechanism (SRM)*

Chart 4.2



the FSB.³² In future, these international provisions are to be further specified under a European legal framework for the recovery and resolution of finan-

²⁸ See Articles 101-109 of the TFEU. For example, the European Commission has the duty to examine public assistance as part of a state aid procedure.

²⁹ See Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014, Article 18.

³⁰ Before being renamed on 1 September 2014, the CPMI was referred to as the Committee on Payment and Settlement Systems (CPSS).

³¹ See Committee on Payment and Settlement Systems and International Organization of Securities Commissions (2012).

³² See Committee on Payments and Market Infrastructures (2014) and Financial Stability Board (2014a).

cial market structures. The European Commission is planning to present a draft for the European legal framework in the first half of 2015.

Improved recovery and resolution rules are also being created for global systemically important insurers (G-SIIs). In July 2013, the FSB published a first list of institutions classified as being of global systemic importance along with corresponding policy measures. These measures included implementing the FSB Key Attributes of Effective Resolution Regimes for Financial Institutions. The implementation of corresponding measures for the individual G-SIIs has now also been initiated. Initial crisis management groups have been set up; authorities and institutions have started developing recovery and resolution plans.

And finally, work is underway to improve the recovery and resolution of systemically important financial institutions which are not part of the banking sector or the insurance sector, ie non-bank and non-insurance SIFIs (NB/NI-SIFIs). However, this process is only just getting underway. The FSB is currently developing methods to identify such institutions.

Deposit guarantee reform boosts confidence

The harmonisation of the European deposit guarantee schemes represents the third pillar of the banking union. Credible deposit guarantee schemes play a major role in maintaining confidence in the banking system and in avoiding the withdrawal of savings deposits in a crisis situation.

The European Deposit Guarantee Schemes Directive³³ entered into force on 2 July 2014. In future, all depositors will have the legal right to compensation for defaults on deposits up to an amount of €100,000. At the same time, guarantee schemes' financial resources are being improved. All EU member

states are obliged to establish *ex ante* bank-financed deposit guarantee funds, the target volume of which is equivalent to 0.8% of member institutions' covered deposits. In addition, it is easier for depositors to obtain compensation as the payout deadline will gradually be cut from 20 to seven working days. Furthermore, it will become obligatory in future for all credit institutions to be assigned to a statutory or legally recognised guarantee scheme.

In Germany, the harmonisation of the Deposit Guarantee Schemes Directive impacts on the institution protection schemes of affiliated bank networks. For the first time, institution protection schemes are included in deposit guarantee schemes, and it is possible for them to be recognised as statutory deposit guarantee schemes. The prerequisite is that they fulfil the above-mentioned criteria regarding the deposit fund and that they recognise the binding legal right to deposit compensation equal to the statutory coverage amount. This partially conflicts with the organisation and execution of an institution protection scheme given that, by definition, a saver compensation event should not occur. However, these funds could then be used at the final stage of the bail-in instrument's liability cascade. It is likely that associations will have to reorganise their institution protection schemes as a result.

The regulations on the harmonisation of deposit guarantee schemes will create standardised and more transparent deposit guarantee schemes within the EU. They will improve protection for savers, boost confidence in the banking system and thus strengthen financial stability.

The regulations on the harmonisation of deposit guarantee schemes will improve protection for savers, boost confidence in the banking system and thus strengthen financial stability.

³³ See Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014. The EU member states are required to transpose the directive into national legislation by mid-2015.

However, a single European deposit guarantee scheme is not envisaged in the near future.³⁴ This is appropriate since the proper functioning of deposit guarantee schemes is still ultimately contingent on government backstops, which remain a national responsibility. A single deposit guarantee scheme would imply joint liability for all member states. However, this would also require a common control mechanism. The lack of fiscal integration at the European level presents an obstacle to this.

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³⁴ See European Commission (2014).

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I The sovereign-bank nexus

Banks and governments are closely interlinked via multiple channels. On the one hand, government solvency crises can adversely affect the credit quality of banks. On the other, governments might be forced to bail out struggling banks, impairing the sustainability of public finances. The negative consequences of this sovereign-bank nexus were thrown into particularly sharp relief in the course of the financial and sovereign debt crisis, when it became clear that their embrace can spiral into a self-reinforcing negative feedback loop during times of crisis.

Direct contagion channels are created when banks grant loans to governments or purchase government bonds, or when explicit government guarantees or capital are used to prop up banks. But indirect ties can also be significant. These include implicit government guarantees for institutions deemed to be systemically important or a potential correlation between the funding terms of governments and banks, particularly in times of crisis.

The European banking union can play a part in severing the link between government and bank risks, but the close ties between banks and sovereigns owe much to the privileged regulatory treatment afforded to government debt securities. These privileges are an institutional conduit for the transmission of risk which needs to be cut off. It is for this reason that the current preferential treatment of sovereign debt – which includes privileges under the capital requirements and applicable large exposure limits – needs to be brought to an end, or at least scaled back substantially, over a medium to long-term horizon.

Regulatory privileges tighten sovereign-bank nexus

As the financial and sovereign debt crisis has shown, the close ties between governments and banks can have significant adverse repercussions for financial stability. One of the aims of the European banking union is to loosen these ties by forcing private creditors in particular to absorb a larger share of potential bank losses.

But the sovereign-bank nexus owes a great deal to the privileged regulatory treatment of government liabilities. These preferential rules comprise the *de facto* zero risk weighting of sovereign exposures, their exemption from the applicable limits on large exposures as well as preferential recognition under the liquidity regulation.¹ If these privileges are not brought to an end over a medium to long-term horizon, any attempt to curb the negative interaction between governments and credit institutions effectively will, in all likelihood, prove insufficient.

There are good reasons for banks to hold government debt securities, quite apart from the regulatory privileges they entail.² Banks need a stock of safe and liquid assets to reduce their vulnerability to adverse liquidity and price shocks, and government bonds, with their high credit quality and deep markets, fit the bill. Government bonds furthermore play an important role as collateral in the interbank market, making them a crucial instrument in liquidity management.³ These incentives for holding sovereign bonds would continue to exist even if the regulatory privileges were to be scaled back.

Banks and sovereigns are essentially dependent on one another, which means that in a crisis situation, contagion can spill over from sovereigns to banks and *vice versa*.⁴

On the one hand, government solvency risks feed through various transmission channels to affect the credit quality and funding options of banks. A deterioration in a sovereign's financial situation can depress valuations of government debt securities and thus directly impact on the risk profile of banks' assets. But banks also use government bonds as collateral to obtain wholesale or central bank funding, so a fall in their value might trigger margin calls or larger haircuts, impeding credit institutions' access to funding.⁵ A sovereign's financial robustness affects banks on the liabilities side of their balance sheets as well, with the cost of government borrowing normally marking the lower bound of domestic banks' funding costs.⁶ Last but not least, explicit and implicit government guarantees can diminish domestic banks' funding costs, giving rise to moral hazard and distorting the competitive environment.⁷

Government solvency risks feed through various transmission channels to affect the credit quality of banks.

Viewed from the other perspective, banks can trigger or exacerbate sovereign debt crises. For instance, when systemically important banks ran into difficulties, governments often felt compelled to implement comprehensive asset relief measures which place a drag on public finances. What is more, government

Struggling banks can trigger or exacerbate sovereign debt crises.

¹ See Wissenschaftlicher Beirat at the Federal Ministry of Finance (2014) and T Büttner, K A Konrad and J Rocholl (2014).

² For the purposes of this article, government debt securities include all forms of exposures to general government, notably government bonds and loans.

³ See also International Monetary Fund (2012), pp 88 ff.

⁴ L Laeven and F Valencia (2012) *inter alia* discuss the ratio of bank to sovereign debt crises.

⁵ See also P Angelini, G Grande and F Panetta (2014).

⁶ See Committee on the Global Financial System (2011).

⁷ See A Haldane (2010), K Ueda and B Weder di Mauro (2012), J Noss and R Sowerbutts (2012) and S Schich and S Lindh (2012).

budgets are frequently saddled with the risks involved in spinning off and resolving problem assets, as was the case in Germany with the nationalised Hypo Real Estate. Bank liabilities, moreover, can potentially become government liabilities if explicit or implicit government guarantees are in place or assumed to exist by market players.⁸

Empirical research points to tighter sovereign-bank nexus

As European financial markets became increasingly integrated in the wake of monetary union, banks invested to an ever greater extent in the government debt securities of other member states. Particularly big banks from euro-area core countries seized upon the yield spreads vis-à-vis less creditworthy countries. The preferential regulatory treatment afforded to sovereign debt meant that they could do so without having to comply with any additional regulatory capital requirements.⁹ In many euro-area countries, this acted as a catalyst for building up unsustainable budgetary positions.

Crisis brings contagion risk to light, ...

The close ties between banks and sovereigns produced the contagion effects described earlier in this article during the course of the financial and sovereign debt crisis.

As the crisis unfolded, the climbing sovereign risk first spilled over into the banking sector. Banks from euro-area core countries found that the market had repriced the risk of their holdings of government debt securities. Research indicates that it was chiefly institutions with more substantial holdings of high-risk government debt securities that were at greater risk of default,¹⁰ hence these banks' efforts to shift more of their portfolios towards domestic

securities which were eligible as collateral in central bank credit operations.¹¹ They also scaled back their (syndicated) lending to non-financial corporations.¹² There is much to suggest that this was why these non-financial corporations – especially those from crisis-hit countries or with financing relationships to those countries – exhibited lower investment and employment growth as well as negative sales growth rates.¹³

Added to this, the accumulation of cross-border sovereign exposures on banks' balance sheets in the run-up to the financial and sovereign debt crisis went into reverse (see Chart 5.1), picking up pace when banks simultaneously came under pressure to deleverage.¹⁴ In turn, this response produced negative feedback effects which weighed on the countries hardest hit by the crisis. As banks offloaded their cross-border exposures, yield spreads between member state bonds, which had previously narrowed sharply, began to diverge again, causing funding costs in the countries which were hardest hit by the crisis to increase.

Public support measures shifted the risks of problem banks directly to government budgets.

Government support measures for banks were another factor which adversely affected national budgets. Struggling banks took a heavy toll on public finances, especially in Cyprus, Ireland and Spain, which were forced to roll out what were, in

⁸ See S Gerlach, A Schulz and G Wolff (2010).

⁹ See V V Acharya and S Steffen (2014).

¹⁰ See V De Bruyckere, M Gerhardt, G Schepens and R V Vennet (2013) and A Alter and B Beyer (2014).

¹¹ See T Hildebrand, J Rocholl and A Schulz (2012), who observe these portfolio shifts at banks with large holdings of Greek government bonds.

¹² See A Popov and N van Horen (2013).

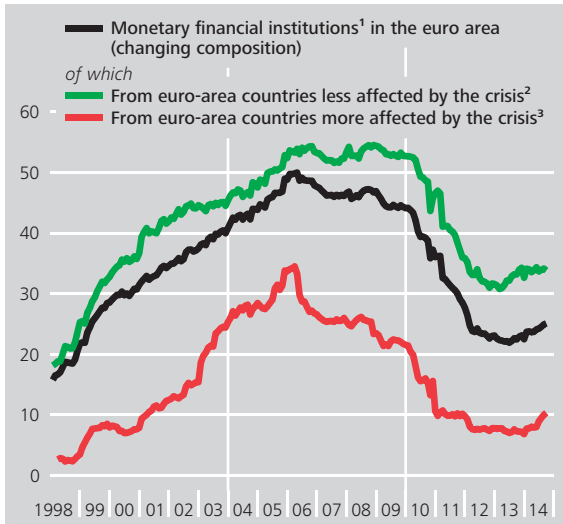
¹³ See V V Acharya, T Eisert, C Eufinger and C Hirsch (2014).

¹⁴ See International Monetary Fund (2013). Another potential factor for banks in euro-area core countries was the fact that the reputational risk inherent in exposures to risky sovereigns intensified as the European sovereign debt crisis unfolded.

Monetary financial institutions' holdings of securities issued by foreign general government in the euro area

Chart 5.1

As a percentage of the institutions' total holdings of euro-area general government securities, monthly data



Sources: ECB and Bundesbank calculations. **1** Excluding central banks. **2** Austria, Belgium, France, Germany and the Netherlands. **3** Greece, Ireland, Italy, Portugal and Spain.
 Deutsche Bundesbank

some cases, substantial direct support measures for the banking sector, with the effect that the risks of problem banks were shifted directly to government budgets.

These developments intensified the sovereign debt crisis in Europe. Monetary policymakers implemented non-standard measures to safeguard liquidity in Europe's financial markets and also to buy time for the countries hardest hit by the crisis to implement necessary structural reforms and to consolidate their budgets.

Following the onset of the financial crisis, the member states of the European Union (EU) granted the banking sector asset relief and liquidity measures on an exceptional scale (see Table 5.1). Between October 2008 and October 2013, the European Commission approved more than 400 measures in aid of the financial sector. The most significant instru-

ments, quantitatively speaking, were guarantees of bank liabilities, the volume of which peaked in 2009 at €836 billion, or 7.1% of the EU's gross domestic product (GDP). Other liquidity support measures in the amount of €70 billion were also decided upon. Government guarantee volumes climbed to astronomical heights in some countries. The Irish government, for instance, issued a blanket guarantee for the liabilities of the country's largest banks, underwriting a volume of €284 billion, or 174% of GDP, in 2009 (Germany: €135 billion, or 5.6% of GDP).

... intensifying the sovereign-bank nexus

Many countries felt that the crisis left them with no choice but to recapitalise financial institutions or even nationalise them completely. Between 2008 and 2012 EU member states provided credit institutions with aggregate capital injections of €413 billion, with the United Kingdom spending the most (€82 billion), followed by Germany (€64 billion). 2013 saw further publicly funded recapitalisation measures in Greece and Slovenia, which accounted for just over 10% of each country's GDP.

Many countries felt that the crisis left them with no choice but to recapitalise financial institutions or nationalise them completely.

The provision of capital aid was accompanied by other asset relief measures, notably the assumption of problem assets in an aggregate amount of €179 billion (1.4% of GDP), of which Germany accounted for a substantial €80 billion (3% of GDP), followed by the United Kingdom with €40 billion (2.1% of GDP).

Government influence on the liabilities side of banks' balance sheets is now waning as the reform and recovery measures implemented by credit institutions, member states and the EU take effect. Guarantees

are increasingly being left unused, and banks are beginning to repay their government capital aid.

Banks increased home bias

The sovereign-bank nexus was also tightened when banks in the countries hardest hit by the debt crisis

Banks in the countries hardest hit by the debt crisis have increased their holdings of domestic government bonds, some of them to a substantial degree.

increased their holdings of domestic government bonds, some of them to a substantial degree. In Spain (9.5%) and Italy (10.3%), domestic government bond

holdings as a percentage of the total assets in each country's banking system at the end of the third quarter of 2014 went well beyond the euro-area average of 4.4%.¹⁵

Various explanatory approaches have been posited for the build-up of credit institutions' exposures to domestic general government (home bias). The academic literature holds that domestic institutions might have a comparative advantage regarding the acquisition of risks stemming from domestic government debt securities, for instance because governments occasionally exercised creditor discrimination, granting preferential repayment terms or adjusting national regulations in favour of domestic creditors in a default scenario.¹⁶ This meant that domestic banks could look forward to a higher expected return on these sovereign exposures than their foreign counterparts. Home bias is also interpreted as a response to a perceived higher exposure to redenomination risk.¹⁷

Another possible explanation put forward in the literature is that the search for yield by banks from crisis-hit countries and the possible influence of domestic governments might be at play here.¹⁸ Furthermore, poorly capitalised banks from crisis-hit

Public sector aid in the context of the financial crisis

Table 5.1

Country/ group of countries	Recapitalisation measures and other asset relief measures		Outstanding guarantees and other liquidity measures			
	2008-2012		2009		2012	
	€ bn	As a per- cent- age of 2012 GDP	€ bn	As a per- cent- age of 2012 GDP	€ bn	As a per- cent- age of 2012 GDP
European Union ¹	591.9	4.6	906.0	7.7	534.5	4.1
<i>of which</i>						
Belgium	40.4	10.7	46.8	13.9	45.8	12.2
France	26.3	1.3	92.7	4.9	53.4	2.6
Germany	144.2	5.5	135.0	5.6	10.0	0.4
Greece	37.3	19.2	5.8	2.4	65.1	33.6
Ireland	65.4	40.0	284.3	173.8	84.2	51.5
Italy	6.1	0.4	0.0	0.0	85.7	5.5
Portugal	9.9	6.0	9.0	5.4	16.8	10.1
Spain	88.1	8.4	55.4	5.3	75.4	7.2
United Kingdom	122.8	6.5	165.1	10.5	54.6	2.9

Source: European Commission. ¹ In the composition of 27 member states.

Deutsche Bundesbank

¹⁵ Developments until September 2013 are outlined inter alia in Deutsche Bundesbank (2013a), pp 31-32.

¹⁶ See F Broner, A Erce, A Martin and J Ventura (2014) and F Broner, A Martin and J Ventura (2010) for theoretical models explaining these correlations and F Brutti and P Sauré (2014) for empirical testing. One reason might be that a burden on domestic creditors is more of a drag on domestic economic activity than a burden on foreign creditors. Similarly, domestic creditors might be able to hold greater sway over a government's prospects of re-election. Yet domestic creditors did not enjoy preferential terms in the Greek debt restructuring.

¹⁷ See also M Battistini, M Pagano and S Simonelli (2014), who identify a rise in home bias for euro-area banks following an increase in the systematic risk components of domestic government bond yields, and P Angelini, G Grande and F Panetta (2014).

¹⁸ See V V Acharya and S Steffen (2014) and M Battistini, M Pagano and S Simonelli (2014).

countries in Europe might have an incentive to purchase risky domestic government debt securities as a means of benefiting asymmetrically from the potential returns, while their downside risk is still kept in check by managers' and equity investors' limited liability (gambling for resurrection).¹⁹ The home bias phenomenon is also likely to have been amplified by the three-year longer-term refinancing operations (LTROs) carried out by the Eurosystem in late 2011 and early 2012.²⁰

Increasing home bias diminished asset diversification and thus intensified the sovereign-bank nexus, particularly in the countries hit hardest by the crisis. This was another development that was additionally fuelled by the preferential regulatory treatment of sovereign exposures – specifically, their exemption from the large exposure regime.

German banks shifting government bond portfolios

German banks' vulnerability to risks arising from investment in government bonds can be examined using the securities holding statistics.²¹ In total, Ger-

German banks have increasingly aligned their government bond portfolios with the macroeconomic situation and the default risk of specific sovereigns.

man credit institutions' exposure to government bonds, as recorded by the Bundesbank in these statistics, amounts to €375 billion and thus 4.9% of total assets.²² Since the onset of the financial crisis in 2008, the share of government bonds has been fluctuating between 3.7% and 5.0% of total assets. The composition of the portfolios has changed significantly, as German banks have aligned their investment in government bonds more heavily with the macroeconomic situation and the default risk of specific sovereigns.²³

As a consequence, there are two opposing developments in the government bond portfolio's risk profile, indicating a divergence (see Chart 5.2). On the one hand, German banks have heavily stocked up their top-rated sovereign bond holdings since the financial crisis, an increase that is largely attributable to the purchase of German government bonds. On the other hand, the share of bonds assessed as risky (rating of BBB or lower) in German banks' government bond portfolios also grew at the same time, rising from 0.6% at the end of 2006 to around 14% in the second quarter of 2014. This increase is apparent for all categories of banks, but is clearest for the Pfandbrief banks, where the figure grew from 0.3% of all government bonds at the end of 2006 to 51% in the second quarter of 2014.

The expanded share of risky government bonds in the portfolio is, however, predominantly driven by rating downgrades for legacy holdings and not by net purchases of risky government bonds. Rather, German banks have significantly cut back their existing exposure to public debtors with declining credit quality.²⁴ Without these reductions, calculated using the holdings from the start of 2007, 27% of total government bond portfolios would now consist of bonds with a rating of BBB or lower, instead of the actual figure of 14%.²⁵ A further reduction in the risk positions in the government bond portfolios would

¹⁹ See V V Acharya and S Steffen (2014).

²⁰ The ECB conducted two LTROs in December 2011 and February 2012 with terms of around three years. These three-year operations were carried out on a full allotment basis and each offered counterparties the option of early repayment after a minimum term of roughly one year. Banks paid a variable rate for these operations which was fixed at the average rate of the main refinancing operations over the life of the respective LTRO. Taken together, the two operations generated a bidding and allotment volume of more than €1,000 billion. See Deutsche Bundesbank (2012), pp 26-28.

²¹ For information on these statistics, see also http://www.bundesbank.de/Redaktion/EN/Standardartikel/Service/Reporting_systems/securities_holdings_statistics.html.

²² Refers to all banks in Germany on an unconsolidated basis. As at the second quarter of 2014; measured at nominal value.

²³ See C M Buch, M Koetter and J Ohls (2013).

²⁴ See C M Buch, M Koetter and J Ohls (2013).

²⁵ As at the second quarter of 2014.

probably, at the height of the financial crisis, have been accompanied by falling market prices and losses in value for the positions remaining on the balance sheet.

In the aggregate, these developments result in a decline in holdings of government bonds with AA or A ratings and a bipolar distribution in the German banking system's portfolio, as shown in Chart 5.2.

Current banking regulation fosters sovereign-bank nexus

The privileged treatment which banking regulation affords to government debt instruments, such as the *de facto* zero risk weighting for exposures to government debtors, their exemption from the applicable limits on large exposures and their preferential recognition under the liquidity regulation, fosters the sovereign-bank nexus. These rules should therefore be fundamentally rethought.

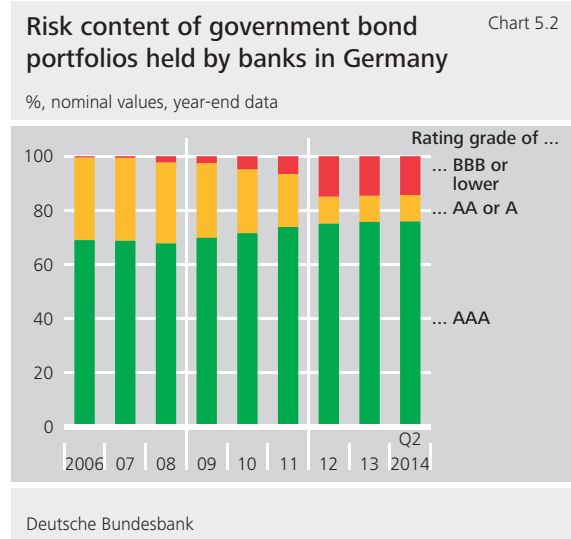
The special regulatory rules could result in insufficient capital being held against loans to governments. If this privileged treatment reduces risk premiums for government bonds, this could weaken the market's disciplining effect on public finances. Owing to the mutual dependencies of sovereigns and credit institutions described above, the latter would, in turn, be exposed to higher risks.²⁶

Furthermore, the sovereign debt crisis revealed that

Restructuring government debt via haircuts can be more difficult when banks have high exposures to sovereign debtors.

restructuring government debt via haircuts can also become necessary in a monetary union. These haircuts can be more difficult when banks have high exposures to sovereign

debtors, especially when insufficient capital is held



against these positions. The resulting lack of resilience in banks and the high concentration of sovereign solvency risk in the banking system reduce the chances of orderly insolvencies of credit institutions or haircuts on government debt. The sovereign debt crisis showed, however, how important it is for the financial system to be able to withstand even the extreme scenario of a haircut on government debt.

The special rules also promote carry trades, in which credit institutions finance the purchase of higher-yielding government bonds using cheap central bank funding and earn the resulting spread. Large, more weakly capitalised credit institutions in particular have an incentive to enter into especially large exposures to public issuers.²⁷ This can increase balance sheet risk, which weakens the stability of the financial system. If government bond prices fall and market liquidity decreases, it becomes difficult for credit institutions to reduce their government bond holdings because they may be reluctant to realise losses. Additionally, sales have a negative impact on market prices and the value of the positions remaining on the balance sheet.

²⁶ See C W Calomiris and S H Haber (2014) on the interaction between sovereigns and banking systems.

²⁷ See V V Acharya and S Steffen (2014).

Their privileged regulatory treatment tends to boost demand for government debt instruments, which, if supply remains unchanged, lowers yields and eases the pressure on public finances. However, this then distorts prices and weakens the disciplining effect of the markets, which can lead to an excessive increase in government debt. If – due to regulation – private borrowers are crowded out, economic growth can also be adversely affected, which in turn would have a negative impact on public finances.

Systematically dismantle privileged treatment for government debt instruments

Privileged regulatory treatment is only justified in a market economy if it increases welfare by correcting a failure of market mechanisms caused, for example, by external effects. These prerequisites do not appear to be fulfilled in relation to the preferential regulatory treatment afforded to government debt. The privileged treatment of government debt influences credit institutions' investment decisions, creating a bias towards government debt instruments, which can affect the relative market prices of different forms of investment and borrowers' funding costs.

In order to reduce the risk of contagion between banks and sovereigns and hence to strengthen financial stability, the preferential treatment of exposures to governments should be brought to an end or at least scaled back substantially, over a medium to long-term horizon. As this may have considerable repercussions for investors as well as for some sovereign issuers, implementation must be planned as a medium to long-term process. The timeline could also include a relatively long phase-out period for privileged treatment. It should focus on the five areas outlined below.

Abolishing zero risk weighting

Adequate capital needs to be held against exposures to sovereign debtors on bank balance sheets. The basis for zero risk weighting in the EU is a derogation contained in the Basel framework. The current *de facto* zero risk weighting of exposures to sovereign debtors does not adequately reflect the risk these exposures actually entail. Exposures to sovereign debtors therefore require risk-appropriate capital backing in order to end the public sector's funding advantage, for which there is no objective justification.²⁸

The current de facto zero risk weighting of exposures to sovereign debtors does not adequately reflect the risk these exposures actually entail.

Applying limits on large exposures

Large exposure limits ought to apply to all claims held by credit institutions. It was agreed under the Basel framework that the upper limit for claims on individual borrowers or groups of affiliated clients should not be applied to sovereign debt. This Basel rule, which must be implemented by 2019, already applies under the EU large exposures framework for those government debt instruments which are given zero risk weighting under the Standardised Approach to Credit Risk. This preferential treatment afforded to sovereign debtors undermines the desired effect, which is risk diversification. An upper limit on large exposures should

Large exposure limits ought to apply to all claims held by credit institutions.

²⁸ Preferential regulatory treatment of government debt could, at the most, be justified by the fact that banks have to invest in safe assets (ie government debt instruments) for economic reasons. This should not stand in the way of risk-appropriate capital backing, however.

therefore also apply to exposures to governments in future.

Reviewing liquidity regulation

Government bonds are also given preferential treatment under liquidity regulation. In determining the liquidity coverage ratio (LCR) and the structural liquidity ratio known as the net stable funding ratio (NSFR),²⁹ government bonds should be classified according to their actual liquidity status. The liquidity regulation that comes into force in 2015 makes the assumption that liquidity is always a given in the government bond markets. Although these bonds typically have very high market liquidity, the sovereign debt crisis has shown that this assumption is not always correct. The general assumption that market liquidity is always guaranteed for government bonds is therefore not justified.

The general assumption that market liquidity is always a given for government bonds is not justified.

Increasing transparency

Risk positions should always be fully disclosed, since investors in credit institutions depend on being able to gain a comprehensive picture of the opportunities and risks that the institutions actually face. Greater transparency reduces investors' uncertainty and can limit an increase in volatility and negative confidence effects, particularly in crisis situations. Expanded disclosure requirements for the risk positions in the government bond portfolios of banks are therefore a good means of fostering the

Expanded disclosure requirements for banks foster the financial markets' disciplining function and help to curb systemic risk.

financial markets' disciplining function and curbing systemic risk.

Ensuring consistent regulation of all financial intermediaries

Treatment of claims on sovereign debtors needs to be consistent with that of claims on other debtors, as a rule. In addition, consistency in the regulations for the banking industry and across the various sectors of the financial system is crucial for minimising regulatory arbitrage, including the associated stability risks and distortions. Thus, consistency also implies eliminating special rules that give preferential treatment to government bonds and benefit non-bank financial intermediaries such as insurers. In addition, care must be taken to ensure that future regulatory initiatives do not again lead to a privileged status for claims on sovereign debtors (eg haircuts on securities financing transactions based on government bonds, EU proposal to separate retail and investment banking).

Treatment of claims on sovereign debtors needs to be consistent with that of claims on other debtors, as a rule.

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²⁹ For information on the new liquidity management requirements, see Deutsche Bundesbank (2013b), p 101.

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■ Chronology of macroprudential policy measures

- German Financial Stability Committee (FSC; *Ausschuss für Finanzstabilität*)
- European Systemic Risk Board (ESRB)
- Measures in other EU countries

■ 2013

1 January 2013 **The Financial Stability Act (*Finanzstabilitätsgesetz*), which was passed by the Bundestag in November 2012, enters into force**

The Financial Stability Act provides the legal basis for the FSC as Germany's national macroprudential authority. It authorises the FSC to draw attention to risks to financial stability by issuing warnings to the Federal Government, the Federal Financial Supervisory Authority (BaFin) or other domestic entities, and to make recommendations calling on the respective addressees to take countermeasures. The Financial Stability Act defines the role of the Bundesbank in safeguarding financial stability. The Bundesbank's tasks comprise identifying factors and risks that are key to financial stability, preparing the FSC's annual report to the Bundestag, developing proposals for warnings and recommendations by the Committee, and assessing the implementation of the measures. The Financial Stability Act furthermore foresees that the Bundesbank and BaFin shall exchange any information required to fulfil their tasks. In addition, financial corporations can be obligated to submit relevant economic and trade data to the Bundesbank. The Federal Ministry of Finance (*Bundesministerium der Finanzen*) may issue a regulation specifying the data in question.

18 March 2013 **The FSC holds its inaugural meeting**

Chaired by the Federal Ministry of Finance, the FSC deliberates on all relevant issues relating to financial stability in Germany on a quarterly basis. It uses Bundesbank analyses to carry out this task. Furthermore, as members of the FSC, BaFin and the Federal Agency for Financial Market Stabilisation (FMSA) contribute their specific expertise.¹

¹ See Federal Ministry of Finance, Press release of 18 March 2013.

20 June 2013 **The ESRB issues a recommendation on intermediate objectives and instruments of macroprudential policy**

The ESRB publishes intermediate objectives for macroprudential policy, with a view to making macroprudential policy operational. The following intermediate objectives were identified: to mitigate and prevent excessive credit growth and leverage, to mitigate and prevent excessive maturity mismatch and market illiquidity, to limit direct and indirect exposure concentrations, to reduce moral hazard, and to strengthen the resilience of financial infrastructures.²

8 July 2013 **The ESRB publishes a handbook on the follow-up to its recommendations, as well as its 2012 Annual Report**

The handbook provides structured guidance on the follow-up to the ESRB's recommendations. The ESRB carries out a systematic evaluation of the implementation of its recommendations. It assesses either the implementation of a recommendation by the addressees or – in cases of failure to implement – the justification given by the addressees for inaction (comply or explain). The assessment ratings for the former range between "fully compliant" and "non-compliant", and for the latter between "sufficiently explained" and "insufficiently explained".

The ESRB publishes its 2012 Annual Report.³

4 November 2013 **The ESRB presents a follow-up report on the implementation of the recommendation on lending in foreign currencies**

The follow-up report provides the assessment of the implementation of the ESRB's recommendation by the various addressees. The ESRB assigns Germany and 11 other member states the grade "fully compliant". A further 14 member states are graded "largely compliant". Only in Bulgaria does the ESRB find the implementation to be "partially compliant".⁴

² See European Systemic Risk Board, Recommendation of 4 April 2013 on intermediate objectives and instruments of macro-prudential policy, June 2013.

³ See European Systemic Risk Board, Annual Report 2012, July 2013.

⁴ See European Systemic Risk Board, Recommendation on lending in foreign currencies, Follow-up Report – Overall assessment, November 2013.

■ 2014

28 January
2014

The ESRB presents its decision on coordinating national notifications with opinions and recommendations of the ESRB

The ESRB creates – in line with the CRD IV and CRR – a joint procedural framework regarding the notification of national macroprudential policy measures and the issuance of recommendations by the ESRB.⁵

3 March 2014

The ESRB publishes a handbook on the use of macroprudential instruments

The handbook, developed in liaison with the national authorities, provides an overview of the macroprudential instruments that have already been selected and those that are envisaged for the future. It contains suggestions for operationalising the new instruments and is directed at the national authorities.

In parallel, the “Flagship Report on Macro-prudential Policy in the Banking Sector” is published, which provides an overview of the new macroprudential policy framework.⁶

28 March 2014

The FSC sees risks in a protracted period of low interest rates

Following its fifth meeting, the FSC publishes a press release addressing the risks for the German financial system posed by a protracted period of low interest rates. The FSC examines the impact of low interest rates on financial stability, particularly with regard to the real estate market, the profitability of credit institutions, and life insurers.

16 April 2014

Croatia activates the systemic risk buffer

Croatia informs the ESRB that it will activate the systemic risk buffer for all institutions and all exposures on 19 May. For institutions with a low level of complexity (subgroup 1), the systemic risk buffer will be set at 1.5% of risk-weighted assets, while for institutions with a high level of complexity (subgroup 2), it will be set at 3%.⁷

⁵ See European Systemic Risk Board, Decision of 27 January 2014 on a coordination framework regarding the notification of national macro-prudential policy measures by competent or designated authorities and the provision of opinions and the issuing of recommendations by the ESRB, January 2014.

⁶ See European Systemic Risk Board, Handbook on Operationalising Macro-prudential Policy in the Banking Sector, March 2014.

⁷ All notifications can be found on the European Systemic Risk Board’s website: <http://www.esrb.europa.eu>

22 April 2014 **Slovenia introduces minimum requirements for the liquidity position of domestic credit institutions**

Slovenia informs the ESRB that it will introduce minimum requirements for domestic credit institutions regarding the ratio of loans to deposits with effect from 30 June. This step aims to counter the trend of declining lending combined with increasing deposits.

29 April 2014 **The Netherlands introduces the buffer for systemically important institutions and, for four systemically important banks, the systemic risk buffer**

The Dutch authorities inform the ESRB that they will introduce additional capital requirements for four domestic banks. Both the systemic risk buffer and the buffer for systemically important institutions will be used. The measures will be introduced owing to the high level of aggregate total assets of all Dutch credit institutions, which amounts to over 400% in relation to annual macroeconomic output.

8 May 2014 **Belgium increases the risk weights for mortgage loans for IRB banks by 5 percentage points**

In response to warnings from the National Bank of Belgium, the Belgian authorities inform the ESRB about the increase in the risk weights for mortgage loans by 5 percentage points. This is intended to counter overvaluation in the domestic housing market.

21 May 2014 **Estonia activates the systemic risk buffer**

Estonia informs the ESRB that it will introduce a systemic risk buffer on 1 August. Owing to a structurally high concentration of exposures and similar risk profiles of domestic banks, the Estonian authorities will introduce a systemic risk buffer of 2% on all exposures.

16 June 2014 **The FSC approves its first annual report to the Bundestag**

At its sixth meeting, the FSC approves its first annual report to the Bundestag. The report contains an overview of its activities and conceptual work since it was founded in January 2013. Furthermore, it presents the current risks for the German financial system. These mainly stem from default and contagion risks resulting from the European debt crisis, cumulated sectoral risks of German banks,

the current low-interest-rate environment and ample supply of liquidity as well as from structural changes in the financial system. The Committee's most important conceptual task during the reporting period was drawing up a macroprudential strategy. The strategy sets out in detail by what means and in compliance with which guidelines the Committee intends to achieve its overarching aim of contributing to safeguarding the stability of the financial system as a whole.⁸

25 June 2014 **The ESRB presents a follow-up report on the implementation of the recommendation on the macroprudential mandate of national authorities**

The follow-up report provides the assessment of the implementation of the ESRB's recommendation by the various addressees. The ESRB grades the implementation in Germany, and in six other member states (Croatia, Czech Republic, Hungary, Slovakia, Slovenia, United Kingdom), as "fully compliant". In a further 17 member states, the implementation is graded as "largely compliant". In a total of five member states, the ESRB considers the implementation to be "partially compliant" with its recommendation.⁹

25 June 2014 **Latvia introduces the capital conservation buffer**

Latvia informs the ESRB that since 28 May credit institutions and investment companies have been required to maintain a capital conservation buffer of 2.5% of their risk-weighted assets. The requirement applies to banks and other listed institutions.

Denmark decides to introduce a capital buffer for six national systemically important credit institutions on 1 January 2015

The Danish authorities inform the ESRB about their agreed methodology for determining "other systemically important institutions" and the setting of the resulting risk buffer. In line with this approach, the institutions are divided into five subcategories based on the volume of their total assets and the volume of their loans and deposits, each of which are measured as a percentage of gross domestic product. The level of additional capital requirements depends on which subcategory the institution has been assigned to. The buffers will be phased in gradually between 2015 and 2019.

⁸ See Financial Stability Committee, Erster Bericht an den Deutschen Bundestag zur Finanzstabilität in Deutschland, June 2014.

⁹ See European Systemic Risk Board, Recommendation on the macro-prudential mandate of national authorities, Follow-up Report – Overall assessment, June 2014.

26 June 2014 **The Bank of England's Financial Policy Committee (FPC) takes measures to contain systemic risks in the British real estate market**

While the Bank of England leaves the countercyclical capital buffer at zero, the FPC addresses a recommendation to the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA) asking them to tighten the requirements for new mortgage loans. Thus, with effect from 1 October, lenders must limit the number of mortgage loans made to households where the loan to income ratio is at or greater than 4.5 to no more than 15% of their overall number of mortgage loans. This measure aims to avoid a substantial proportion of borrowers no longer being able to shoulder the financial burdens arising from the loans in the event of an interest rate rise. The Bank of England particularly highlights the consequences for private consumption and thus for macroeconomic developments. Furthermore, lenders are required to check on an individual basis whether borrowers would still be able to fulfil their financial obligations if the lending rates went up by three percentage points.¹⁰

30 June 2014 **The ESRB publishes a recommendation on setting countercyclical buffer rates**

The ESRB issues a recommendation on setting buffer rates, which consists of four subrecommendations. These comprise fundamental principles, the calculation method on the basis of credit gaps, variables that indicate cyclical, systemic risk, and guidance on when the buffer should be maintained, reduced or fully released. Furthermore, the recommendation contains specific implementation requirements for the addressees, which the latter must report on by 30 June 2016.¹¹

15 July 2014 **Croatia activates the capital conservation buffer and implements the countercyclical capital buffer**

The Croatian authorities inform the ESRB that a capital conservation buffer of 2.5% of risk-weighted assets has been in force since January. Furthermore, they announce that they will implement a countercyclical capital buffer on 1 January 2015. The amount of the latter will be determined by the Croatian National Bank in due course.

¹⁰ See Prudential Regulation Authority – Bank of England, Consultation Paper CP 11/14 Implementing the Financial Policy Committee's recommendation on loan to income ratios in mortgage lending, June 2014.

¹¹ See European Systemic Risk Board, Recommendation of 18 June 2014 on guidance for setting countercyclical buffer rates, June 2014.

21 July 2014

The ESRB publishes its opinion on Belgian risk weights for real estate

The ESRB considers Belgium's 5 percentage point increase of the risk weights for mortgage loans for IRB banks based on Article 458 of the CRR to be justified, suitable, effective and efficient.¹²

The ESRB publishes its 2013 Annual Report

In its annual report, the ESRB provides an overview of the economic environment and of its activities and conceptual work. Furthermore, the report addresses the impact of regulatory reforms in banking (SSM and BRRD), insurance (Omnibus II Directive) and the financial markets (MiFID and MiFIR) on the ESRB's scope of activity.¹³

31 July 2014

The Czech Republic introduces the capital conservation buffer

The Czech Republic notifies the ESRB that it introduced a capital conservation buffer of 2.5% of risk-weighted assets on 22 July.

10 September
2014

Sweden increases capital requirements and minimum risk weights

Sweden increases the minimum risk weights for Swedish and Norwegian mortgage loans to 25%. In addition, four banks classified as systemically important must maintain a systemic risk buffer of 3% of risk-weighted assets and additional tier 1 capital of 2% as of 1 January 2015.¹⁴ Furthermore, Sweden informs the ESRB that it will introduce a countercyclical capital buffer of 1% on 13 September 2015.

12 September
2014

The Czech Republic implements the countercyclical capital buffer

The Czech Republic implements the countercyclical capital buffer for banks and other institutions with effect from 1 October. The capital buffer is initially set at 0% of total risk-weighted assets.

¹² See European Systemic Risk Board, Opinion regarding Belgian notification of a stricter measure based on Article 458 of the CRR, April 2014.

¹³ See European Systemic Risk Board, Annual Report 2013, July 2014.

¹⁴ See Finansinspektionen, Memorandum – Capital requirements for Swedish banks, May 2014.

30 September 2014 **The Czech Republic announces the introduction of a systemic risk buffer**

As of 1 November, the Czech authorities will require four banks classified as systemically important to maintain systemic risk buffers of between 1% and 3%, with different rates applying to the individual institutions. The justification given by the authorities for opting for the systemic risk buffer is that, in their opinion, the upper limit of 2% for the “other systemically important institutions” buffer is too low.

7 October 2014 **Slovakia limits lending in relation to loan collateral**

The Slovak authorities decide that all banks, building and loan associations and branches of foreign banks may not issue new loans secured by real estate if they exceed the value of the real estate. Furthermore, the share of new loans with a loan-to-value ratio of between 90% and 100% should not exceed 25% of all loans. By 2017, this percentage will be lowered to 10%. In addition, the maturities for retail loans will be limited from March 2015 onward. No more than 10% of new housing loans, bridging loans and loans secured by real estate may have a maturity of more than 30 years. The maximum maturity for other retail loans will initially be nine years and will then be reduced to eight years from 2016 onward.

Glossary

AIFM	Alternative Investment Fund Manager
AQR	Asset Quality Review (review of the quality of bank assets as part of the comprehensive assessment)
AT1	Additional Tier 1
BaFin	Federal Financial Supervisory Authority
BLS	Bank Lending Survey
BRRD	Bank Recovery and Resolution Directive
CA	Comprehensive Assessment
CCB	Countercyclical Capital Buffer
CCP	Central Counterparty
CET1	Common Equity Tier 1
CGFS	Committee on the Global Financial System
CoCos	Contingent Convertible Bonds
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CRD IV	Capital Requirements Directive IV
CRR	Capital Requirements Regulation
CRSA	Credit Risk Standardised Approach
DSTI	Debt Service to Income
EBA	European Banking Authority
EFSF	European Financial Stability Facility
ELTIF	European Long-Term Investment Funds
EONIA	Euro Overnight Index Average
ESM	European Stability Mechanism
ESRB	European Systemic Risk Board
ETF	Exchange-Traded Fund
EU	European Union
Euribor	Euro Interbank Offered Rate
EuSEF	European Social Entrepreneurship Funds
EuVECA	European Venture Capital Funds
FCA	Financial Conduct Authority
FMSA	Financial Market Stabilisation Agency
FPC	The Bank of England's Financial Policy Committee
FSB	Financial Stability Board
FSC	Financial Stability Committee
GLAC	Gone-Concern Loss-Absorbing Capacity
G-SIB	Global Systemically Important Bank
G-SII	Global Systemically Important Insurer
IFRS	International Financial Reporting Standards

IGA	Intergovernmental Agreement
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IRBA	Internal Ratings-Based Approach
ISDA	International Swaps and Derivatives Association
JST	Joint Supervisory Team
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
LTI	Loan to Income (loan amount in relation to the borrower's disposable income)
LTRO	Longer-Term Refinancing Operation
LTV	Loan to Value (loan amount in relation to the market value of a property)
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MoU	Memorandum of Understanding
MREL	Minimum Requirement for Own Funds and Eligible Liabilities (minimum requirements for the loss-absorbing capacity in the event of resolution in the form of a minimum requirement for own funds and eligible liabilities)
NCA	National Competent Authority
NSFR	Net Stable Funding Ratio
OECD	Organisation for Economic Co-operation and Development
OTC	Over the Counter
PRA	Prudential Regulation Authority
RWA	Risk-Weighted Assets
SB	Supervisory Board
SIFI	Systemically Important Financial Institution
SRB	Single Resolution Board
SRF	Single Resolution Fund
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
TFEU	Treaty on the Functioning of the European Union
TLAC	Total Loss-Absorbing Capacity
UCITS	Directive on Undertakings for Collective Investment in Transferable Securities

Bundesbank publications concerning financial stability

This overview lists selected recent Bundesbank publications on the subject of financial stability. The Financial Stability Review and the Monthly Report are available in both German and English, while most Discussion Papers are only available in English. The publications are available free of charge to interested parties and may be obtained from the Bundesbank's External Communications Department. They are also available online. Additionally, a CD-ROM containing roughly 40,000 published Bundesbank time series, which is updated monthly, may be obtained for a fee from the Bundesbank's Statistical Information Management and Mathematical Methods Division or downloaded from the Bundesbank's ExtraNet platform. Orders should be sent in writing to the addresses given in the imprint. Selected time series may also be downloaded from the Bundesbank's website.

■ Financial Stability Reviews

Financial Stability Review, November 2013
Financial Stability Review, November 2012
Financial Stability Review, November 2011
Financial Stability Review, November 2010
Financial Stability Review, November 2009
Financial Stability Review, November 2007
Financial Stability Review, November 2006
Financial Stability Review, November 2005

■ Articles from the Monthly Report

October 2014	Launch of the banking union: the Single Supervisory Mechanism in Europe
September 2014	The performance of German credit institutions in 2013 Ownership structure in the German equity market: general trends and changes in the financial crisis
August 2014	Monetary policy and banking business
July 2014	Analyses of the importance of the insurance industry for financial stability
June 2014	Europe's new recovery and resolution regime for credit institutions
April 2014	Implications of the Eurosystem's monetary operations during the financial crisis
March 2014	The shadow banking system in the euro area: overview and monetary policy implications

January 2014 Adjustment processes in the member states of economic and monetary union
December 2013 The financial system in transition: the new importance of repo markets

■ Discussion papers

31/2014	Banks, markets, and financial stability	Armin Eder, Falko Fecht, Thilo Pausch
30/2014	International capital flows, external assets and output volatility	Mathias Hoffmann, Michael Krause, Peter Tillmann
29/2014	A one-off wealth levy? Assessing the pros, the cons and the importance of credibility	Gerhard Kempkes, Nikolai Stähler
28/2014	Contingent convertible bonds and the stability of bank funding: the case of partial writedown	Dirk Bleich
27/2014	How is the low-interest-rate environment affecting the solvency of German life insurers?	Anke Kablau, Matthias Weiß
25/2014	Bank capital, the state contingency of banks' assets and its role for the transmission of shocks	Michael Kühl
24/2014	Inflation, deflation, and uncertainty: What drives euro area option-implied inflation expectations and are they still anchored in the sovereign debt crisis?	Michael Scharnagl, Jelena Stapf
23/2014	Contagious herding and endogenous network formation in financial networks	Co-Pierre Georg
22/2014	A network analysis of the evolution of the German interbank market	Tarik Roukny, Co-Pierre Georg, Stefano Battiston
21/2014	Do correlated defaults matter for CDS premia? An empirical analysis	Christian Koziol, Philipp Koziol, Thomas Schön
20/2014	The multivariate option iPoD framework – assessing systemic financial risk	Philipp Matros, Johannes Vilsmeier
19/2014	Mitigating financial stress in a bank-financed economy: equity injections into banks or purchases of assets?	Michael Kühl
18/2014	Interbank lending and distress: observables, unobservables, and network structure	Ben Craig, Michael Koetter, Ulrich Krüger
17/2014	International banking and liquidity risk transmission: lessons from across countries	Claudia M Buch, Linda Goldberg
16/2014	Household saving behavior and credit constraints in the Euro area	Julia Le Blanc, Alessandro Porpiglia, Federica Teppa, Junyi Zhu, Michael Ziegelmeier
15/2014	Quantifying the components of the banks' net interest margin	Ramona Busch, Christoph Memmel

12/2014	How do households allocate their assets? – Stylized facts from the Eurosystem Household Finance and Consumption Survey	Luc Arrondel, Laura Bartiloro, Primin Fessler, Peter Lindner, Thomas Y Mathä, Cristiana Rampazzi, Frederique Savignac, Tobias Schmidt, Martin Schürz, Philip Vermeulen
11/2014	Analyzing business and financial cycles using multi-level factor models	Jörg Breitung, Sandra Eickmeier
9/2014	Market transparency and the marking precision of bond mutual fund managers	Gjergji Cici, Scott Gibson, Yalin Gündüz, John J Merrick, Jr
8/2014	The financial accelerator and market-based debt instruments: a role for maturities?	Michael Kühl
7/2014	Wealth shocks, credit-supply shocks, and asset allocation: evidence from household and firm portfolios	Thomas Kick, Enrico Onali, Benedikt Ruprecht, Klaus Schaeck
5/2014	Earnings baths by bank CEOs during turnovers	Sven Bornemann, Thomas Kick, Andreas Pfingsten, Andrea Schertler
3/2014	Investor fears and risk premia for rare events	Claudia Schwarz
2/2014	Filling in the blanks: network structure and interbank contagion	Kartik Anand, Ben Craig, Goetz von Peter
1/2014	The distribution of debt across euro area countries: the role of individual characteristics, institutions and credit conditions	Olympia Bover, Jose Maria Casado, Sonia Costa, Philip Du Caju, Yvonne McCarthy, Eva Sierminska, Panagiotota Tzamourani, Ernesto Villanueva, Tibor Zavadil
57/2013	Cost leadership and bank internationalization	Rients Galema, Michael Koetter, Caroline Liesegang
56/2013	Market timing, maturity mismatch, and risk management: evidence from the banking industry	Oliver Entrop, Thomas Kick, Benedikt Ruprecht, Marco Wilkens
55/2013	Bank leverage cycles and the external finance premium	Ansgar Rannenberg
54/2013	The role of interbank relationships and liquidity needs	Ben R Craig, Falko Fecht, Günseli Tümer-Alkan
53/2013	Banks' concentration versus diversification in the loan portfolio: new evidence from Germany	Nadya Jahn, Christoph Memmel, Andreas Pfingsten
48/2013	Changing forces of gravity: how the crisis affected international banking	Claudia M Buch, Katja Neugebauer, Christoph Schröder
47/2013	Cash holdings of German open-end equity funds: Does ownership matter?	Niko Dötz, Mark Weth
46/2013	Assessing house prices in Germany: evidence from an estimated stock-flow model using regional data	Florian Kajuth, Thomas A Knetsch, Nicolas Pinkwart
45/2013	Monetary policy and stock market volatility	Dirk Bleich, Ralf Fendel, Jan-Christoph Rülke
44/2013	Collateral requirements and asset prices	Johannes Brumm, Michael Grill, Felix Kubler, Karl Schmedders

42/2013	Is proprietary trading detrimental to retail investors?	Falko Fecht, Andreas Hackethal, Yigitcan Karabulut
41/2013	Interest rate risk and the Swiss solvency test	Armin Eder, Sebastian Keiler, Hannes Pichl