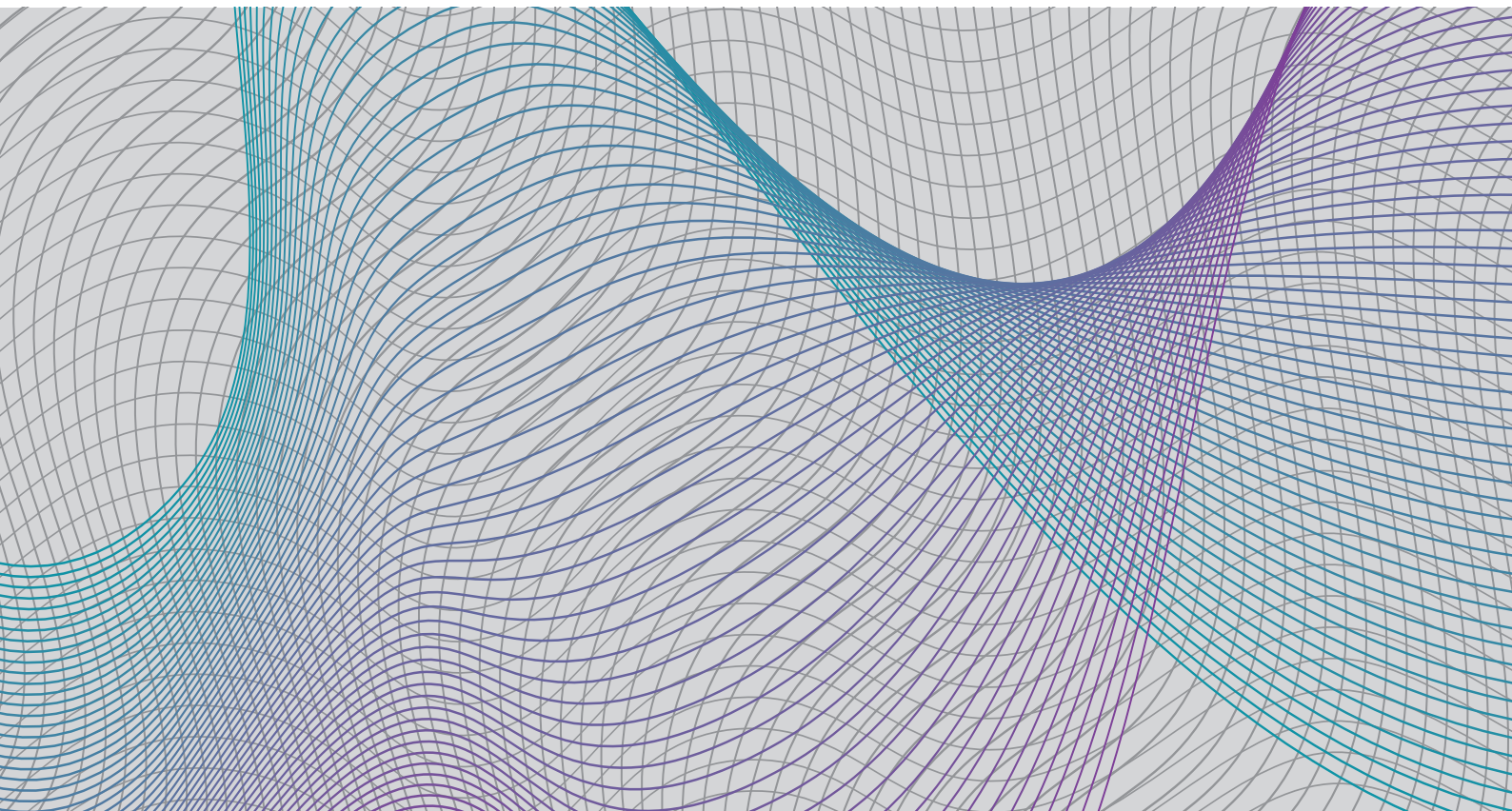




Financial Stability Review 2012



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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	Data unknown, not to be published or not meaningful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

As Germany's central bank and guardian of price stability, the Bundesbank has an inherent interest in ensuring a stable financial system. As an integral part of the European System of Central Banks, it also has an explicit mandate to contribute to financial stability.

The Bundesbank's shared responsibility for safeguarding financial stability stems, above all, from its involvement in macroprudential supervision. The President of the Bundesbank is a member of the European Systemic Risk Board (ESRB), which is responsible for macroprudential oversight at European level. Under the Financial Stability Act (*Finanzstabilitätsgesetz*), which was passed by the lower house of parliament (Bundestag) on 25 October 2012 and will be submitted to the upper house (Bundesrat) for consideration on 23 November 2012, the Bundesbank will be responsible for analysing issues that are key to financial stability, for identifying threats, issuing warnings and recommendations and assessing their implementation. Moreover, the Bundesbank helps to maintain financial stability through its involvement in banking supervision and its role in operating and overseeing payment systems.

The Bundesbank defines financial stability as the financial system's ability to smoothly perform key macroeconomic functions at all times, especially in periods of stress and upheaval. These functions include, in particular, the capacity to allocate financial resources and risks efficiently and provide a sound financial infrastructure.

The ongoing analysis of the stability situation aims to identify systemically important changes and emerging risks in Germany's bank-based financial system as early as possible. This includes taking account of interactions within the national and global financial systems, interdependencies between the financial sector and the real economy, and the effects of the regulatory framework on the efficiency and smooth functioning of the financial sector. The Bundesbank's stability analysis follows a risk-oriented approach based on downside scenarios. Unlike forecasts, which outline the most likely developments, downside scenarios depict potential events and repercussions which, while they may seem unlikely, could cause major harm to the economy as a whole.

This report reflects the Bundesbank's assessment of risks and resilience in the German financial system. The resulting recommendations to market participants and policymakers are summarised in the box entitled "Stability situation in the German financial system in 2012" on page 9. This guidance aims to prompt those involved to implement the measures and adjustments that are needed to strengthen the stability and efficiency of the financial system. This includes looking beyond the short-term horizon and current crisis management needs.

Account has been taken of ongoing developments up to the cut-off date of 12 November 2012.

Financial stability in 2012 – an overview

The risks to the German financial system remain high. The European sovereign debt crisis is still largely dictating the risk situation, having broadened in the course of 2012 and come to a head at various points in the year. On several occasions, doubts were even cast over the long-term survival of European monetary union. Spain and Italy – two major economies – have increasingly been drawn into the crisis. Crisis management measures have now led to a substantial transfer of risk from the private to the public sector. At the same time, they have caused the low-interest rate environment to become entrenched and encouraged investors to search for yield and take on greater risks. Savers are increasingly channelling their funds into forms of investment which they view as a hedge against monetary and exchange rate instability. This is contributing to the rise in real estate prices in Germany's urban centres. Robust household debt sustainability, moderate lending growth and cautious lending standards in Germany are currently preventing a rapid build-up of risks to financial stability. Yet the experiences of other countries show that precisely such an environment of low interest rates and high liquidity can encourage exaggerations on the real estate markets which pose a considerable threat to financial stability.

Five years on from the outbreak of the global financial crisis, the German financial system has grown more robust. Banks have more – and better-quality – tier 1 capital. However, cyclical and structural developments could hamper their profitability in the future. Overall, good progress is being made in implementing the comprehensive plans to reform financial market regulation. The need now is to assess how successfully the flaws in the financial system have been eliminated and identify any potential problems concerning the coherence of the new framework. In Germany, the Financial Stability Act (Finanzstabilitätsgesetz) establishes a legal framework for macroprudential oversight.

Crisis resolution has side-effects

For more than five years, the risk situation in the German financial system has been shaped by a series of stress events. The global financial crisis broke out in summer 2007. Exaggerations on the US real estate market spread to the international financial system via complex financial products, having a severe impact on some German credit institutions. Following the collapse of US investment bank Lehman Brothers, functional flaws in the international financial system triggered a global economic crisis. The European sovereign debt crisis began in spring 2010, sparked by concerns about Greece's public finances. It subsequently spread to other euro-area countries with highly indebted private and/or public sectors and expanded into a banking crisis and a crisis of confidence.

The necessary process of stabilising the financial system has required ongoing monetary and fiscal policy

The side-effects of short-term stabilisation measures could leave a difficult legacy for financial stability in the medium to long term.

measures on a massive scale. However, this has entailed an ever greater transfer of risk to the public sector and has caused the low-interest rate environment to become entrenched. The side-effects of short-term stabilisation measures could leave a difficult legacy for financial stability in the medium to long term.

At present, the European sovereign debt crisis remains the greatest threat to financial stability in Germany and Europe alike. This is due, notably, to the multiple transmission and contagion channels that are inherent within a closely integrated economic and monetary union. Since its onset more than five years ago, the crisis has largely dictated the risk situation. Yet the German financial system has undergone significant changes since then. Ini-

tially, these were mainly focused on correcting past excesses; major German banks with an international focus deleveraged to a considerable extent and increasingly tapped more stable sources of funding, such as deposits. Even in the midst of such a severe financial crisis the German financial system remained fully functional – thanks, not least, to its wide variety of business models.

The German financial system has now noticeably adapted to the changed risk situation in the wake of the sovereign debt crisis. It has significantly reduced its exposure to the governments and banking systems of the countries hit by the sovereign debt crisis. Nonetheless, it still has substantial claims on borrowers in the two major economies of Spain and Italy. If the crisis of confidence in the European financial system were to worsen again, that could still potentially provoke a spillover to the German financial system.

Alongside the acute risks stemming from the sovereign debt crisis, there are a number of factors within the German financial system which were already encouraging excesses to accumulate before the onset of the financial crisis. Low interest rates and an opaque shadow banking system are two such factors. Preventive macroprudential policymaking requires prompt identification of any potentially unhealthy developments unfolding at present which will endanger financial stability in the future.

Preventive macroprudential policymaking requires prompt identification of any potentially unhealthy developments unfolding at present which will endanger financial stability in the future.

The combination of a prolonged period of low interest rates and an ample supply of liquidity typically harbours certain risks to longer-term financial stability. It provides investors with incentives to search for yield and take on greater risks, as well as encour-

Stability situation in the German financial system in 2012

Factors that ...

... strain the stability situation

- Sovereign debt crisis widening; government bond markets still vulnerable, including in Italy and Spain
- Interconnected risk between sovereigns and domestic banking sector increasing in some countries and leading to contagion effects
- Debt sustainability not yet attained in Greece, further funding gap identified
- Increased risk positions in balance sheets of Euro-system central banks
- German financial intermediaries heavily invested in Spain and Italy, contagion risks if sovereign debt crisis worsens
- Low interest rates depressing insurers' investment income
- Bank earnings strained by cyclical and structural developments; intense competition, margins on time deposits partly negative
- Bank lending to businesses squeezed by growing corporate bond issuance (disintermediation)
- Housing prices in German urban areas accelerating, price exaggerations possible in some market segments

... alleviate the stability situation

- Irish and Portuguese government bond yields declining; improved refinancing outlook on the capital market in 2013
- Crisis countries making progress in reducing their fiscal and current account deficits
- European Stability Mechanism (ESM) commencing operation
- German banks and insurers have further reduced exposure to the programme countries
- German banks now significantly more robust, capital levels raised, funding from more stable sources
- Insurers' lower investment income being offset: policyholders' profit participation share lowered, additional interest provisions set up, average guaranteed return gradually falling
- German households' debt sustainability robust
- Cautious lending standards for mortgage agreements
- German shadow banking system relatively small
- Banking union will promote European integration

Necessary measures ...

... for market participants

- German banks: maintain cautious lending standards for mortgage agreements
- Adapt business models promptly to changing environment and new market structures
- Reduce bank balance sheet risks through write-downs or spin-offs of problem assets also in low-interest rate environment, further improve capital base
- Life insurance companies: continue to make provisions to sustain guaranteed returns in the future

... for policymakers

- Do not overburden monetary policy with fiscal policy measures to combat crisis
- In Europe, continue reform course, especially structural reforms, consolidation of public finances and balance sheet cleansing in the banking sector
- Define shadow banking system broadly and pursue initiatives to close data gaps
- Pay attention to coherence and cumulative impact of financial market regulation
- Expedite international implementation of derivatives market regulation
- Address "too-big-to-fail" problem by introducing credible resolution regimes
- Ensure that banking union is fully functional before transferring competencies to European level

aging an increase in maturity transformation. In the specific context of the financial and sovereign debt crisis, two developments give particular cause for concern. First, the abundant supply of wholesale funding is taking pressure off the European banking system to make necessary adjustments to its business models and press ahead with the process of cleaning up its balance sheets. Second, alongside the search for yield, the quest for real and similar valuable assets is gaining prominence as an investment motive. As a result, savers are increasingly also channelling their funds into forms of investment which they view as a hedge against monetary and exchange rate instability. This may lead to exaggerated price developments.

Given the origins of the global financial crisis, particular attention needs to be paid to booming real estate markets. Developments on mortgage markets can have a strong impact on the stability situation. Mort-

There are no signs of a self-reinforcing process of rising real estate prices, high lending and growing household debt which poses a threat to financial stability.

gage loans account for the lion's share of household debt, and are also a large item on the asset side of bank balance sheets. Indeed, growth in housing prices in Germany's urban centres is accelerating.

Nonetheless, there are no signs of a self-reinforcing process of rising real estate prices, high lending and growing household debt which poses a threat to financial stability.

Because of its opaque nature and the opportunities it presents for regulatory arbitrage, the shadow banking system played a major role in the spread of the financial crisis. One of the key insights gained through this experience is the need for more intensive oversight of – and better data on – the entities and activities in the shadow banking system. Although the German shadow banking system is comparatively small, the links between the German

financial system and the global shadow banking system remain a potential source of risk.

At present, the financial system is exhibiting certain characteristics – low interest rates, rising real estate prices and a substantial shadow banking system – which were partly responsible for generating vulnerabilities in the past and must therefore be viewed as risk factors in the medium term. Nonetheless, significant progress has been made in reforming financial market regulation. Regulatory reform has now moved from the planning phase to the phase of implementing various regulatory projects. The most important sources of systemic risk – systemically important financial institutions, procyclicality in the financial system and opaque interlinkages via over-the-counter derivatives markets – are now being addressed. In addition, advances have been made in setting up systems for macroprudential oversight and policy.

The greater the progress made in implementing major regulatory projects, the more important their assessment will become. Such evaluations must

consider how successfully the flaws in the financial system have been eliminated to date and analyse whether the new regulatory framework is coherent overall.

The greater the progress made in implementing major regulatory projects, the more important their assessment will become.

Sovereign debt crisis remains the greatest threat to financial stability

The European sovereign debt crisis has broadened in the course of 2012, coming to a head at various points in the year.¹ First, the number of countries

¹ The chapter entitled "Sovereign debt poses threat to financial stability" provides a detailed description of the factors behind the sovereign debt crisis, the measures taken to curb it and possible routes to recovery.

in its grip has increased: Cyprus requested financial support in June 2012, Spain's application for assistance to restructure its banking sector was approved in July 2012, and Slovenia's public finances have also become strained. Second, the crisis flared up again in the summer, with tensions worsening on the bond markets of the major economies Italy and Spain. Third, the burdens involved in tackling the crisis have increasingly been shifted towards central banks. The progressive blurring of boundaries between monetary and fiscal policy has increased the longer-term risks and side-effects of crisis management measures.

The countries hit hardest by the sovereign debt crisis have now made considerable efforts to consolidate their finances and initiated notable reforms, thus making progress in reducing macroeconomic imbalances. Yet the recovery remains precarious, primarily in those countries with highly leveraged private sectors. The volume of non-performing loans is still on the rise in all of the crisis countries.

One systemic threat is the tight negative feedback loop between banks and their domestic governments.

One particular systemic threat posed by the sovereign debt crisis is the tight negative feedback loop between banks and their domestic governments, which can mutually amplify problems. Italy's public finance difficulties spilled over to the banks, while solvency problems in the banking sectors of Cyprus and Spain spread to the state coffers.

In view of this situation, on 29 June 2012 the euro-area leaders called for the creation of a single supervisory mechanism, involving the European Central Bank (ECB), for banks in the euro area. The decisions taken at the EU summit on 19 October 2012 reiterate this commitment and specify the role of the ECB as a supervisory authority. The aim of the banking union is, above all, to combat the disinte-

gration observed in the European financial markets and reduce the interlinkages between states and their domestic banking sectors.²

An escalation of the sovereign debt crisis would have an adverse impact on the German financial system, too. Any sovereign risk within the euro area spreads directly to large European banks, eg via exposures to governments or through cross-border interbank relationships. In mid-2012, the German banking sector had substantial balance sheet exposures (totalling around €203 billion) to borrowers in the two major economies of Italy and Spain.

German banking system now more robust

In response to the sovereign debt crisis, the group of 12 major German banks with an international focus significantly reduced their exposure to borrowers in Greece (59%),³ Spain (14%), Portugal (21%) and Italy (4%) between mid-2010 and mid-2012. Taken in isolation, this has reduced the threat of cross-border contagion.⁴

Yet the German banking sector does not currently appear to be following a general strategy of abandoning its globalised business models. The group of 12 major German banks with an international focus have reduced their cross-border loans only moderately in the wake of the European sovereign debt crisis, with a decline of 1.2% between spring 2010 and mid-2012. By withdrawing to the confines of the domestic market, German banks would forfeit opportunities on foreign growth markets and

² See also the box entitled "Banking union: a useful addition for Europe in the medium term" on pp 82–83.

³ Principally as a result of the haircut on Greek government bonds.

⁴ The chapter entitled "The German banking system five years into the financial crisis" describes the German financial system's response to the problems arising in the different phases of the crisis.

chances for diversification, and this would therefore be an unwelcome development.

The German banking system is now much more resilient than before the financial and sovereign debt crisis. Tier 1 capital ratios have increased distinctly. Between March 2008 and September 2012,

The tier 1 capital ratio of major German banks with an international focus has increased distinctly.

the tier 1 capital ratio of the group of 12 major German banks with an international focus rose from 8.3% to 13.6% of their risk-weighted assets.

Since the first quarter of 2008, their leverage ratio – the ratio of total assets (as defined in the German Commercial Code) to tier 1 capital – has fallen from 43 to 32.⁵ The leverage ratios recorded for credit cooperatives (16.6) and savings banks (14.9) are much lower. This is mainly because their business models are geared to traditional banking services and they make less use of derivatives which expand balance sheets.

This improved resilience is necessary given the risk situation and the restrained profit outlook. A number of structural developments could hamper profitability over the medium term. First, competitive pressure will increase in some domestic market segments. This is already becoming apparent in the competition for customer deposits. Second, banks could be displaced to some extent from their role as financial intermediaries and thus lose some of their market share – say, through the trend towards corporate financing via the capital market or because of insurers moving into banks' traditional business segments. Third, some necessary regulatory measures will inevitably weigh on banks' profits, such as the contribution (or bank levy) to the Restructuring Fund introduced in 2011 or the regulatory changes making synthetic lending business more costly. These structural shifts will raise new questions about the balance between banks' various business

segments. Credit institutions will therefore need to swiftly adapt their business models to the changing environment.

Low interest rates intensify the search for yield

The low-interest rate environment is having an increasing impact in Germany.⁶ Corporate bonds are benefiting distinctly from the search for yield, while insurers are responding to falling investment income by paying their policyholders smaller profit participation shares and cautiously realigning their investment strategy.

Investors searching for yield are channelling funds into the marketable debt instruments of larger non-financial corporations. Corporate bond issuance has increased sharply; between January and October 2012, it drew in funds of around €210 billion (gross) in the euro area. The yields on these instruments are close to historic lows, having fallen to an average of only 2.2% for BBB-rated corporate bonds and a mere 1.3% for A-rated bonds. Their risk spreads over government bonds have likewise fallen considerably in the course of 2012. However, the high corporate bond valuations stand in contrast to the gloomier economic outlook.

Issuers of promissory notes have also benefited from the growing demand for corporate debt securities. The outstanding volume of this type of instrument – which is common in Germany – has been rising rapidly since the onset of the financial crisis, reaching around €70 billion in mid-2012. By contrast, gross issuance of SME bonds on five German stock exchanges remained low between

⁵ The rise in the tier 1 capital ratio and the fall in the leverage ratio are both understated by statistical breaks. See p 37.

⁶ The chapter entitled "Low interest rates and the search for yield: a challenge for insurers and banks" outlines the risks stemming from short-term exaggerations and issues associated with a longer-term structural shift.

2010 and October 2012, at €3.0 billion in nominal terms.

Conservative investors – among them insurers – suffer the most from prolonged periods of low interest rates. The average net return on investment achieved by German life insurers has continued to fall, declining from 4.3% in 2010 to 4.1% in 2011. Across all tariffs and tariff generations, insurers therefore reduced the current return on life insurance policies in 2011 by an average of 15 basis points to 3.94%. At the same time, the Federal Ministry of Finance cut the maximum technical interest rate again at the beginning of 2012 – from 2.25% to 1.75%.

The low-interest rate environment is prompting insurers to try out new investment strategies, bringing them into greater competition with banks. Insurers are actively migrating into higher-yield investments and new business segments, such as infrastructure and real estate financing or direct lending to enterprises and households. Nonetheless, the credit segment still accounts for only a relatively small share of German primary insurers' total investment.

Growing disintermediation and stronger competition from insurers could have distinct repercussions for banks and their business models.

and their business models. Capacity utilisation and margins in lending business could come under greater pressure.

Growing disintermediation via the corporate bond markets and stronger competition from insurers in certain business segments could have distinct repercussions for banks

Accelerated growth in housing prices in Germany's urban centres

In the present low-interest rate environment, developments on Germany's real estate market also warrant attention. Growth in housing prices in Germany's urban centres is accelerating.⁷ The search for real and similar valuable assets is gaining prominence as an investment motive and will probably contribute to a clear rise in demand in certain market segments.

The volume of debt associated with the real estate market is an indication of just how important real estate prices are to financial stability: mortgage loans to households in Germany came to around €981 billion in mid-2012. These loans not only make up by far the largest share of household debt (over two-thirds); they also account for a large portion (more than 40%) of total domestic lending from German credit institutions to non-banks. The share of mortgage loans to retail borrowers is as high as around 50% among savings banks and credit cooperatives.

At present, average household debt sustainability is robust in Germany. In relation to disposable income, total household debt has been on the decline since 2001, reaching around 95% at the end of 2011. Growth in housing loans in Germany was still moderate in 2011, at roughly 1.2%. Banks are expecting household credit demand to rise, however.

Until now, real estate lending agreements have been comparatively conservative in Germany. For one thing, over 70% of newly issued mortgage loans have an interest rate lock-in of more than five years. For another, the loan-to-value ratio for real estate purchases is typically lower than in other countries.

⁷ The chapter entitled "German housing market gaining momentum" outlines these developments and analyses the resulting risks to financial stability.

Loan-to-value ratios of 100% or more tend to be the exception. One reason for this is the fact that mortgages in Germany are usually refinanced using Pfandbriefe; only mortgages up to 60% of the property's mortgage lending value qualify for the cover pool for Pfandbriefe in Germany.

Robust household debt sustainability, moderate lending growth and cautious lending standards in

An environment of low interest rates and high liquidity can encourage exaggerations on the real estate markets which pose a considerable threat to financial stability.

Germany are currently preventing a rapid build-up of risks to financial stability. At the moment there is no sign of a nascent dangerous spiral of rising housing prices, laxer credit standards, increased lending and growing housing demand. However, the experiences of other countries show that precisely such an environment of low interest rates and high liquidity can encourage exaggerations on the real estate markets which pose a considerable threat to financial stability.

Germany's shadow banking system comparatively small

German shadow banking entities encompass, in particular, mutual funds registered in Germany (including hedge funds, money market funds and exchange-traded funds) and securitisation special-purpose entities (SSPEs).⁸ Open-end mutual funds registered in Germany had assets under management totalling €1,267 billion in September 2012 and are by far the largest component of Germany's shadow banking system. The money market funds and hedge funds contained therein play only a minor role, however. German hedge funds' assets under management totalled only around €1.6 billion in September 2012, compared with €1 billion at

the end of 2006. Having experienced massive outflows in the past few years, the assets managed by money market funds amounted to just €5.4 billion in September 2012, as against €33 billion at the end of 2006.

The market for open-end real estate funds in Germany comprises retail funds, with a volume of €85 billion, and specialised funds, with a volume of €36 billion (as at September 2012). Certain flaws in the design of open-end real estate funds have come to light in recent years. There is a maturity mismatch between the short-term offload option on fund shares and the funds' long-term, illiquid investments in real estate. As a result of closures, more than a quarter of the asset pool of public open-end real estate funds is no longer available to investors.

The total assets of the statistically recorded shadow banking entities in Germany stood at around €1.3 trillion in September 2012. This corresponds to approximately 15% of the total assets of Germany's regular banking sector. However, given the vague definition of the shadow banking system, these figures can provide only a rough idea of its size.

The German financial system has strong ties with the global shadow banking system, which means that problems in the global shadow banking sector can also affect

financial stability in Germany. There are direct links forged by assets and liabilities stemming from business ties (eg repo

Problems in the global shadow banking sector can affect financial stability in Germany.

operations or securitisations) and, less visibly, by implicit guarantees and liquidity lines (for investment vehicles which belong to domestic entities but

⁸ The chapter entitled "The shadow banking system: small in Germany, but globally connected" analyses the risks to the German financial system stemming from the domestic shadow banking sector and from links with the global shadow banking system.

are domiciled abroad). Indirect links can be created via the global financial markets – say, if the investment behaviour of shadow banking entities changes rapidly around the world. It is therefore essential to analyse potential risks in the global shadow banking sector in terms of their possible implications for financial market stability in Germany.

Financial market regulation moves into the implementation phase

Regulatory initiatives are currently focused on the areas which pose the greatest risks to the stability of the financial system.⁹

One of the tasks at hand is to address the problem of large, closely interconnected banks being “too big to fail”. Initial progress has now been made in this area, notably the adoption of a new international standard for resolution regimes. In addition, over and above the Basel III requirements, capital surcharges are to be introduced for systemically important financial institutions (SIFIs) to improve their loss absorbency and reduce the likelihood of government rescue measures being needed.

Another necessary task is to reduce the procyclicality of the financial system. Basel III is due to be transposed into EU law before the end of this year (through the Capital Requirements Directive IV (CRD IV) and the Capital Requirements Regulation (CRR)), thus introducing various new macroprudential tools. In particular, these tools will serve to counteract any procyclical build-up of risk in the financial system. The most important instruments are the countercyclical capital buffer and the variable capital charge for residential and commercial real estate lending.

A third essential task is to make the global over-the-counter (OTC) derivatives market more transparent and secure. The adoption of the European

Market Infrastructure Regulation (EMIR) was a crucial step in this direction. OTC transactions, which until now have remained largely unregulated and, in some cases, unsecured, will in future largely have to be secured and cleared via central counterparties (CCPs) and reported to central trade repositories.

Finally, macroprudential policy is taking shape in Germany and Europe alike. Its objective is to pre-emptively correct unhealthy developments and thus avert threats to financial stability. This is particularly important in a monetary union where economic developments and structures differ among the member states. The individual countries no longer have their own monetary policy tools to selectively combat undesirable regional or sectoral developments. It is therefore important to ensure that the national authorities responsible for macroprudential oversight are given sufficient flexibility and room for manoeuvre. A recommendation published by the European Systemic Risk Board (ESRB) states that macroprudential policy needs an appropriate national institutional framework in order to be effective. The Financial Stability Act (*Finanzstabilitätsgesetz*), which was passed by the lower house of parliament (Bundestag) on 25 October 2012 and will be submitted to the upper house (Bundesrat) for consideration on 23 November 2012, will establish a legal framework for macroprudential oversight in Germany.¹⁰ This Act assigns the Bundesbank important tasks, including responsibility for analysing issues that are key to financial stability, for identifying threats, issuing warnings and recommendations and assessing their implementation.

The Financial Stability Act will establish a legal framework for macroprudential oversight in Germany.

⁹ The chapter entitled “Progress in reforming financial market regulation” describes these regulatory initiatives and looks at potential problems with the new governance framework.

¹⁰ See the box entitled “Macroprudential oversight in Germany” on p 85.

Sovereign debt poses threat to financial stability

The high levels of sovereign debt in the industrial countries still present the greatest risk to financial stability. Some euro-area countries have been put in the spotlight by both the markets and the general public. Yet the deficits and high volumes of government debt in other major countries may also place a burden on the world economy and global financial stability in the medium term.

In the euro area, the sovereign debt crisis has broadened in the course of 2012, coming to a head at various points in the year. The public finances of Spain and Cyprus have suffered as a result of their domestic banks' recapitalisation needs. Considerable tensions emerged in the summer, particularly in the Spanish and Italian bond markets. The announcement of new central bank measures brought some calm to these markets, but the burdens and risks involved in tackling the crisis have increasingly been shifted towards central banks.

There is a tight negative feedback loop between banks and their domestic governments. In addition to the problems caused by the sovereign debt crisis, the banking systems in some countries are having to deal with a deterioration in the economic situation of households and enterprises, whose debt has reached historic highs. The simultaneous need to clean up public and private finances is putting credit institutions under intense pressure to adapt.

German financial institutions have continued to scale back their already limited exposures to debtors in the programme countries. By contrast, their financial ties with Spain and Italy are much more extensive and thus present greater direct and indirect contagion risks to the German financial system.

European sovereign debt crisis broader and more intense

Five years have passed since the global financial crisis erupted, and the high and rising levels of sovereign debt in the industrial countries remain the biggest threat to financial stability. Financial market

Experience has shown that growth tends to remain muted in the aftermath of a financial crisis until the necessary adjustments are complete.

assessments indicate a renewed rise in credit risk for a number of countries.¹ This has coincided with downgrades in the ratings of some euro-area countries, some of them significant (see

Chart 2.1). The downbeat short and medium-term economic outlook for these countries played a part in the downgrades. Experience has shown that growth tends to remain muted in the aftermath of a financial crisis until the necessary adjustments in the private and public sector are complete.²

Sovereign debt still on the rise in industrial countries

Although the general public and the financial markets are focusing on the fiscal problems affecting the euro area, other major industrial countries are facing big budgetary challenges as well (see Chart 2.2). General government debt in the industrial countries will continue to rise in the coming years, and the average is already set to exceed 110% of gross domestic product (GDP) in 2012.³ In Japan, government debt remains on an upward trend despite the tax reforms that have been passed. Japanese credit institutions have increased their holdings of domestic government bonds in recent years, thereby intensifying the negative feedback loop between them and the Japanese state. The United States has not yet devised a consolidation strategy that will assure

the long-term sustainability of its public finances. At the same time, measures will be needed in the short term to contain the destabilising effect of the “fiscal cliff” created by expiring tax breaks and automatic spending cuts scheduled to come into force at the end of 2012.

General government debt might thus place a considerable burden on the world economy and global financial stability over the medium term as well.

Banking crisis feeds back to sovereigns

In the euro area, the sovereign debt crisis broadened in the course of 2012, coming to a head at various points in the year. The haircut agreed as part of the restructuring of Greece’s debt in March 2012 meant that private investors took a 53.5% loss on the nominal value of the Greek government bonds they held. This called into question the traditional regulatory approach of treating the government bonds of industrial countries as credit risk-free assets.

The problems facing the banking sector have fed back to public finances, intensifying the crisis in recent months. The Greek haircut compounded the difficulties of Cypriot banks with an international focus, which are traditionally heavily exposed to Greece. Cyprus applied for financial assistance from the euro-area countries and the International Monetary Fund (IMF) in June 2012.

The euro-area countries agreed to grant Spain an assistance package of up to €100 billion, to be used exclusively for restructuring its banking sector. The situation among Spain’s savings banks had previously been weighing heavily on market confidence. Important institutions faced a growing

¹ See International Monetary Fund (2012a), p 81 ff, and M G Arghyrou and G Koutonikas (2012).

² See S Cecchetti, M Mohanty and F Zampolli (2011).

³ See International Monetary Fund (2012b), p 17.

need for write-downs and provisioning, particularly in their real estate operations, forcing them to raise new equity capital. This in turn had negative repercussions for Spain's sovereign debt markets. At the same time, the Spanish government had to announce that its fiscal deficits were much wider than originally planned. An independent review of the balance sheets of 14 Spanish banking groups now estimates that no more than €59 billion in fresh capital will be needed, which would be markedly less than the maximum funds pledged by the euro-area countries.

To tackle the tight negative feedback loop between sovereigns and domestic banks, the decisions taken by the euro-area heads of state or government in June 2012 are designed to push towards greater institutional integration within the euro area. This will entail the creation

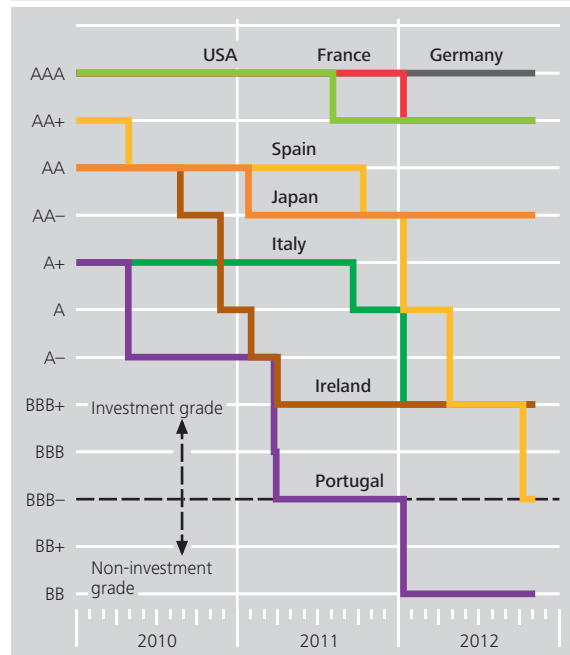
Establishing a single supervisory mechanism for banks may, in principle, be a useful addition to European monetary union.

of a single supervisory mechanism for banks in the euro area involving the European Central Bank (ECB). The decisions taken at the EU summit in October 2012 reiterate

this commitment and specify the ECB's role as a supervisory authority. According to the Eurogroup, the establishment of a single supervisory system for banks is a precondition for the direct recapitalisation of credit institutions via the European Stability Mechanism (ESM). The latter may help to reduce the negative feedback effects between banks and their domestic governments. Establishing a single supervisory mechanism for banks that is embedded in the broader initiative to create a banking union may, in principle, be a useful addition to European monetary union. However, it is a forward-looking project that is not designed to encompass legacy liabilities.

Long-term issuer rating

Chart 2.1

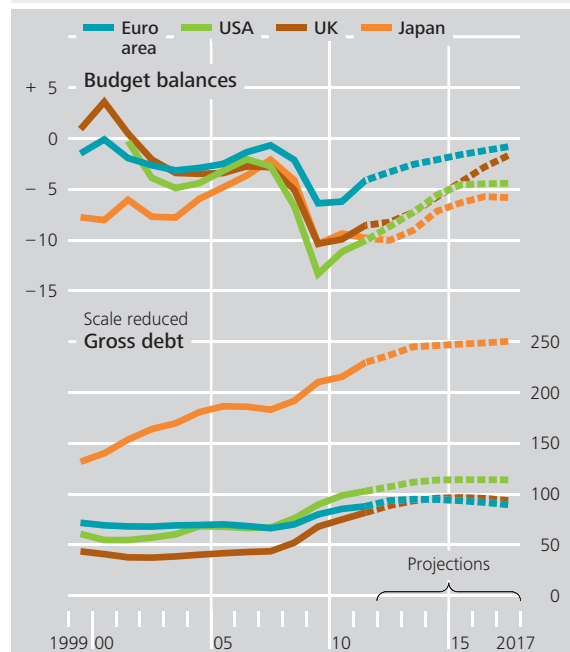


Sources: Bloomberg and S&P.
 Deutsche Bundesbank

Public finances

Chart 2.2

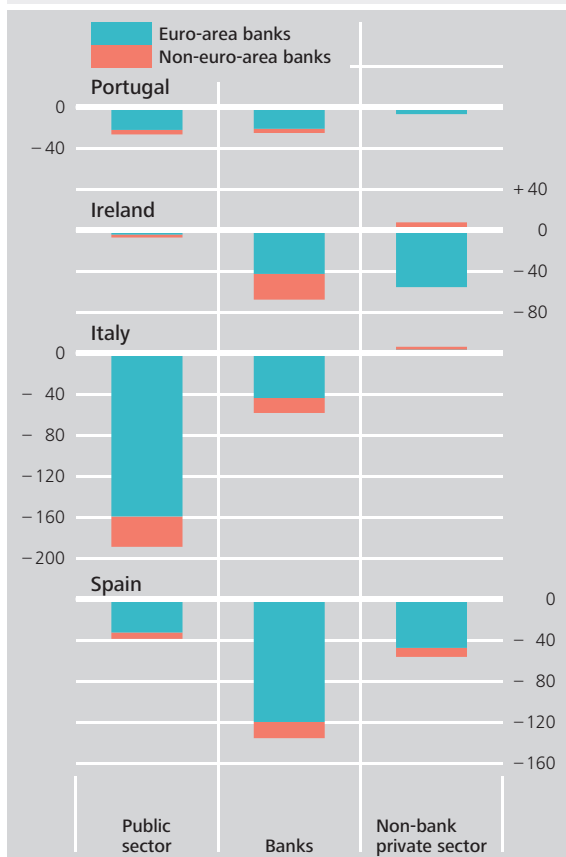
As a percentage of GDP



Source: IMF.
 Deutsche Bundesbank

Cross-border claims of international banks* by sector Chart 2.3

Change between end-2009 and June 2012 in € billion



Sources: BIS and Bundesbank calculations. * Based on the consolidated banking statistics (including foreign branches and subsidiaries) of the countries that report to the BIS.

Deutsche Bundesbank

It cannot be a “quick fix” for breaking the sovereign-bank loop.⁴

Crisis of confidence in the euro area

The tension afflicting the bond markets in Italy and, above all, Spain grew more intense in summer 2012, and the sovereign debt crisis broadened into a fundamental crisis of confidence. These concerns were reflected in risk premiums that increased the yields on bonds issued by the countries at the centre of the crisis. Likewise, enterprises deployed account-

ing strategies to avoid having large open positions in euro-area countries regarded as financially vulnerable. The situation was compounded by fears of a large-scale withdrawal of deposits from the relevant banking systems, although there was little evidence of this outside Greece. The banks with an international focus that report to the Bank for International Settlements (BIS), meanwhile, have scaled back their lending to debtors in the programme countries, and in Spain and Italy, by around a third since the sovereign debt crisis began (see Chart 2.3). Conversely, Germany and other “core” euro-area countries recorded capital inflows that contributed to the sometimes negative yields at the short end of the government bond markets.

In addition to providing individual countries with assistance, the euro-area member states responded to the crisis on numerous occasions. The overall financial support available under the European Financial Stability Facility (EFSF) and the ESM was raised to an effective aggregate volume of €700 billion. The ESM commenced its work in October 2012. Furthermore, the extended toolkit of the assistance facilities went into operation, enabling interventions in the government bond markets, for example.

In effect, however, the burdens involved in tackling the crisis have increasingly been shifted towards central banks. Back in December 2011 and February 2012, the Eurosystem conducted two three-year longer-term refinancing operations, allotting an aggregate volume of more than €1,000 billion. Likewise, it relaxed the eligibility criteria for collateral, thereby making central bank liquidity more broadly

The burdens involved in tackling the crisis have increasingly been shifted towards central banks.

⁴ A communitisation of legacy liabilities would constitute a fiscal transfer payment and would have to be disclosed. See also the box entitled “Banking union: a useful addition for Europe in the medium term” on pp 82–83.

available. On 6 September 2012, the ECB's Governing Council agreed by majority vote to implement further extensive non-standard measures. Provided that the required strict and effective conditionality attached to an EFSF/ESM assistance programme is fulfilled, interventions on an unlimited scale are now possible in the short-term segment of the government bond markets.

Prices in the tense markets eased following the announcement of this measure. With the Eurosystem thus set to play an even more prominent role in containing the crisis, it looks likely that further risk will be transferred from private sector balance sheets to the Eurosystem's books. These expanding functions have already led to higher market and credit risk from securities holdings and to an asymmetric supply of liquidity – reflected in the TARGET2 balances of Eurosystem central banks – that has become increasingly risky as the crisis progresses.⁵ These developments imply a redistribution of financial risks among the taxpayers of the euro-area countries without the involvement of national parliaments. There is also a danger that the intensified efforts to tackle the short-term impact of the crisis might ultimately ask too much of a monetary policy that is geared to medium-term objectives.⁶

Euro-area countries between liquidity risks and doubts over debt sustainability

The self-reinforcing interaction between liquidity risks and market doubts over debt sustainability has been particularly evident in Greece. Despite the haircut on bonds held by private creditors and the second rescue package, Greece failed to reach important milestones on the path towards achieving debt sustainability.

Developments in Greece are causing pressures and contagion effects to spread across national borders and economic sectors.⁷ However, the other two

programme countries, Ireland and Portugal, have managed to decouple their government bond yields from these developments. Both countries are set to cover part of their funding requirements on the capital market again in 2013 and manage without financial support from 2014. Against the backdrop of sharply declining government bond yields, Ireland has raised €9.8 billion via bond exchanges and new issuances since the beginning of 2012. In the coming years, the country will face the particularly imposing task of rolling over the huge sums deployed by the Irish state to rescue its banking sector. Portugal returned to the short-term segment of the capital markets with a bond exchange at the beginning of October. Although yields on Portuguese government bonds are also well down on their peaks at the beginning of 2012, they are still relatively high for longer maturities (see Chart 2.4).

Developments in Greece are causing pressures and contagion effects to spread across national borders and economic sectors.

Spain and Italy managed to cover their funding requirements in a difficult and volatile market environment, although they did have to pay much higher risk premiums at times. On the bond markets, debt sold by foreign investors was taken up by domestic market participants and, temporarily, the Eurosystem as part of the Securities Markets Programme (SMP), a scheme that was discontinued in September 2012. Both countries will once again have to roll over and newly issue significant amounts of debt in 2013 and 2014; according to IMF estimates, each country's annual aggregate volume will be more than 20% of GDP.⁸

⁵ Deutsche Bundesbank (2012), p 17 ff investigates the relationship between non-standard monetary policy measures and the increase in TARGET2 balances.

⁶ See Bank for International Settlements (2012), p 34 ff.

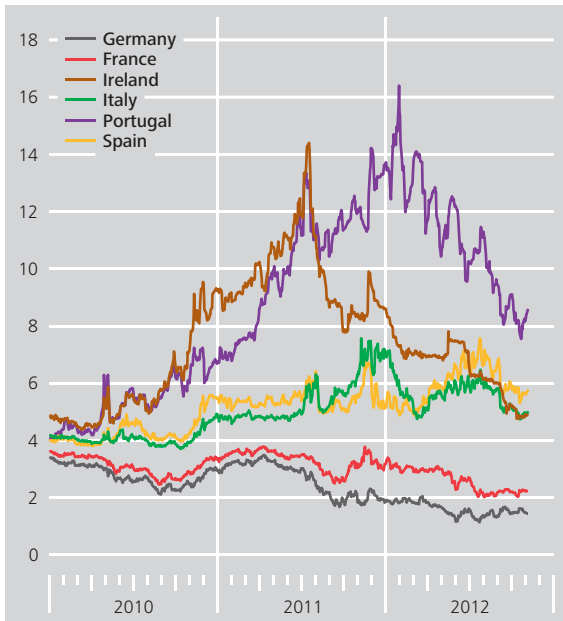
⁷ See M Mink and J de Haan (2012).

⁸ See International Monetary Fund (2012b), p 29.

Yields on ten-year government bonds

Chart 2.4

% pa, daily data

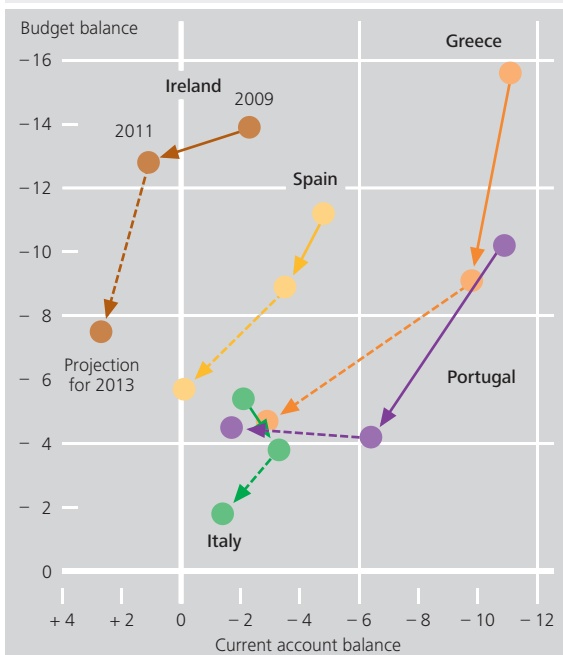


Source: Thomson Reuters.
 Deutsche Bundesbank

Fixing the twin deficits

Chart 2.5

As a percentage of GDP



Source: IMF.
 Deutsche Bundesbank

Structural reforms lead the way out of the crisis

To permanently dispel market doubts over long-term debt sustainability, it is essential to correct the twin deficits, ie simultaneous public budget and current account shortfalls (see Chart 2.5). Reforms designed to improve international competitiveness are important steps towards achieving this goal. The programme countries as well as Spain and Italy have now made progress in these areas, markedly so in some cases.

Progress made in reducing macroeconomic imbalances

The current account deficits in Greece, Ireland, Portugal and Spain are down from their peaks in 2008. Ireland's current account was already back in the black in 2010. So far, however, the reduction in current account shortfalls is probably only partly attributable to structural reforms, as the contraction in economic activity in these countries is also likely to have been a contributory factor. Italy's current account, by contrast, has deteriorated since 2008, although its deficit is comparatively small.

The affected countries adopted fiscal consolidation measures, some of them far-reaching. As a result, they succeeded in reducing their budget deficits from the peaks recorded in 2009. However, owing to the fiscal repercussions of the adverse economic backdrop, the structural adjustments that have already been made are not fully visible in government budgets. Although progress has been made, public finances still need to be consolidated, and the scale of the adjustments required differs from one country to the next. In terms of the primary balance, Ireland has a particularly steep hill to climb.⁹

⁹ See European Commission (2012), p 16.

In addition, debt levels look set to rise further in the coming years. Despite the initial progress made in consolidating their budgets, public finances in the crisis countries remain vulnerable to negative shocks to their primary balances, the growth rates expected by market participants, the support needed

Crisis countries succeeded in reducing their budget deficits from the peaks recorded in 2009.

for their financial sectors, and the interest payments on general government debt. However, the long average maturity of the sovereign debt is currently containing the risk of lasting damage to debt sustainability resulting from a temporary spell of higher interest rates in the primary markets (see Chart 2.6).

Reform efforts should be continued

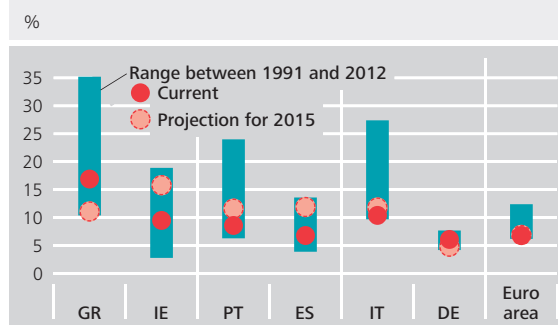
The countries at the centre of the European sovereign debt crisis now face the challenge of taking continuing steps to restore the health of their public finances and restructure their banking sectors in adverse economic conditions. Reforms designed to bolster potential growth and safeguard positive primary fiscal balances are major levers that can dispel market doubts over long-term debt sustainability and thus ensure that sovereigns and resident banks can return to the capital markets for good. The programme countries as well as Italy and Spain have all rolled out important reforms.¹⁰

Now it is crucial to continue the reform efforts, even under tough economic conditions. Additional credibility can be achieved by monitoring and following the adjustment process under the assistance programmes negotiated for individual countries and the new fiscal rules for euro-area member states. The same applies to the

Now it is crucial to continue the reform efforts, even under tough economic conditions.

Interest burden on government budgets*

Chart 2.6



Source: IMF. * General government interest expenditure as a percentage of revenue. Throughout the period under review, data for the euro area are calculated using the aggregate nominal figures for the 17 member states.

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procedures for preventing and correcting macroeconomic imbalances. Stable and orderly public finances are a prerequisite for growth. The experiences in the Nordic countries during the 1990s show that extensive structural reforms involving the banking sector lead the way out of a crisis, even though they may entail a brief dip in growth.¹¹

Private debt places strain on banks

Countries in which not just the public sector but the private sector, too, is saddled with heavy debt will see their economies and financial systems coming under particularly intense pressure. First, high debt levels make the non-financial private sector vulnerable. Second, the lending banks, for their part, are also exposed to commensurate risks that exacerbate the negative impact the sovereign debt crisis is

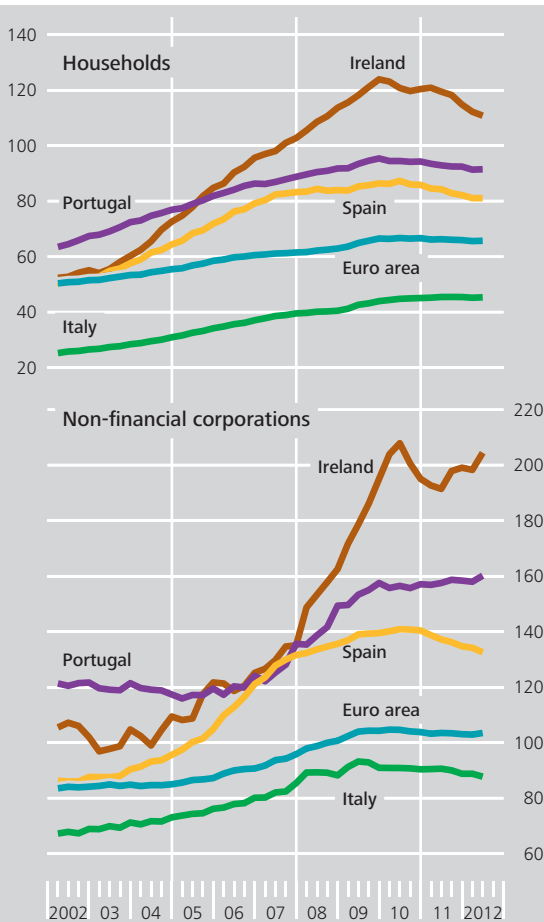
¹⁰ The OECD regularly reports on structural reforms and indicates further opportunities for improvement. See Organisation for Economic Co-operation and Development (2012).

¹¹ See C Borio, B Vale and G von Peter (2010) as regards the need to quickly and comprehensively clean up banks' balance sheets.

Private sector debt

Chart 2.7

As a percentage of GDP

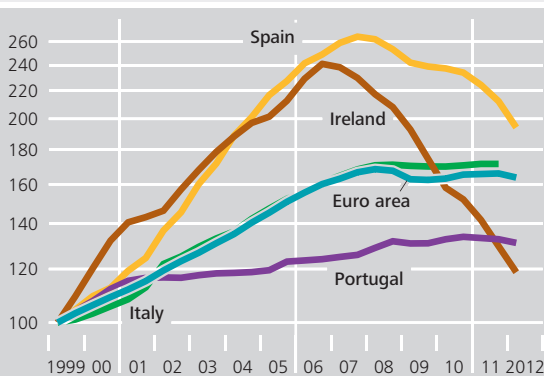


Source: ECB.
 Deutsche Bundesbank

Residential property prices

Chart 2.8

1999 H1 = 100, semi-annual, log scale



Sources: ECB and Bundesbank calculations.
 Deutsche Bundesbank

already having on their business situation. The debt ratios of households and non-financial corporations in Ireland, Portugal and Spain reached historic highs. From the banks' perspective, a deterioration in the quality of both loan collateral and borrowers would be particularly hazardous. The correction of a credit-driven real estate bubble in a recessionary environment is one such scenario.

Households have begun to reduce liabilities

Although households in Ireland, Portugal and Spain have started to scale back their liabilities, their debt levels nonetheless remain substantial (see Chart 2.7). In the second quarter of 2012, liabilities amounted to 123% of disposable income in Portugal, 125% in Spain and as much as 199% in Ireland. By contrast, average household debt in the euro area at the time of observation was around 99% of disposable income. Income losses associated with the drop in growth in these countries are one of the reasons why debt levels are diminishing slowly. A cyclical upswing that could improve this situation is unlikely to materialise in the near future.

Debt incurred to purchase real estate accounts for the lion's share of households' liabilities. Household creditworthiness thus largely depends on developments in the residential real estate market. At the same time, price developments are crucial to the value of the loan collateral provided.

Household creditworthiness largely depends on developments in the residential real estate market.

Real estate prices in Ireland and Spain rose sharply during the boom (see Chart 2.8) but are now well off their peaks (50% below in Ireland and just over 25% below in Spain). The price-to-rent and price-to-income ratios indicate whether further corrections are to be expected. While these ratios are already

back below their long-term average in Ireland, they point to the prospect of further corrections in Spain. Both measures have declined markedly in Spain but are still around a quarter higher than their long-term average.

Enterprises have barely reduced their liabilities so far

The non-financial corporate sector is another area in which debt levels had risen, exceptionally so in many cases, since the launch of monetary union. The construction industry in Spain and Ireland had run up heavy debts during the real estate boom. The bursting of this bubble, and the impact of the recession, caused a dramatic loss of business that adversely affected credit quality. The difficult economic situation has thwarted enterprises' efforts to make lasting cuts in their debt levels (see Chart 2.7). In the second quarter of 2012, debt levels in Ireland were almost twice the euro-area average of around 104% of GDP.¹² In Portugal and Spain too, above-average debt levels are hampering business activity. Enterprises, like households, have probably only just started the process of cleaning up their balance sheets, and this might feed back into the banking sector via rising credit default levels.

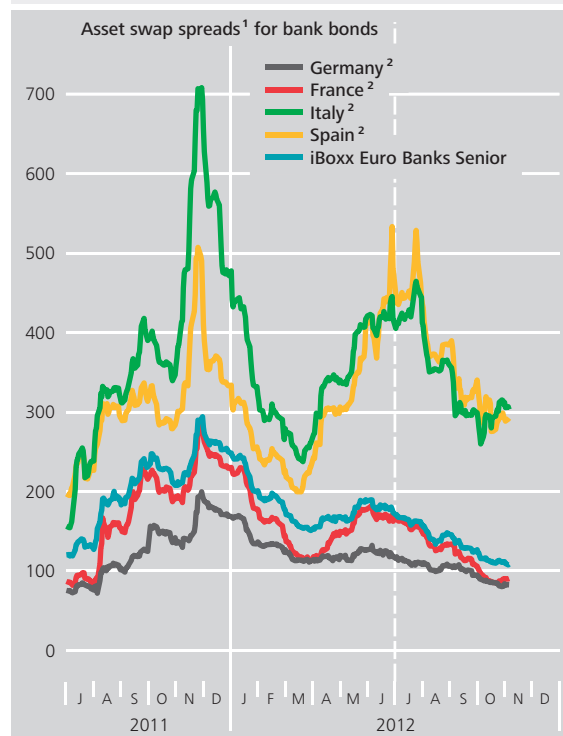
Banks in European crisis countries under pressure to adapt

The crisis has illustrated the tight negative feedback loop between banks and their domestic governments. Both assessments of their solvency, as well as their liquidity situation, are highly interdependent and there is a strong risk of contagion. This is demonstrated by the correlation between bank and sovereign risk premiums, and also by rating downgrades: once a sovereign's issuer rating has been

Risk premiums on senior unsecured bank bonds

Chart 2.9

Basis points, daily data



Sources: Bloomberg, Thomson Reuters and Bundesbank calculations. **1** An asset swap spread is a mark-up on a variable money market rate. The asset swap spread plus the variable money market rate equals the variable cash flow that the investor in a fixed-coupon bond receives in exchange for the fixed cash flow from the fixed-coupon bond in a swap transaction. The size of the mark-up depends on the default risk of the bond issuer. **2** Asset swap spreads on the bonds included in the iBoxx Euro Banks Senior index weighted by nominal amounts.

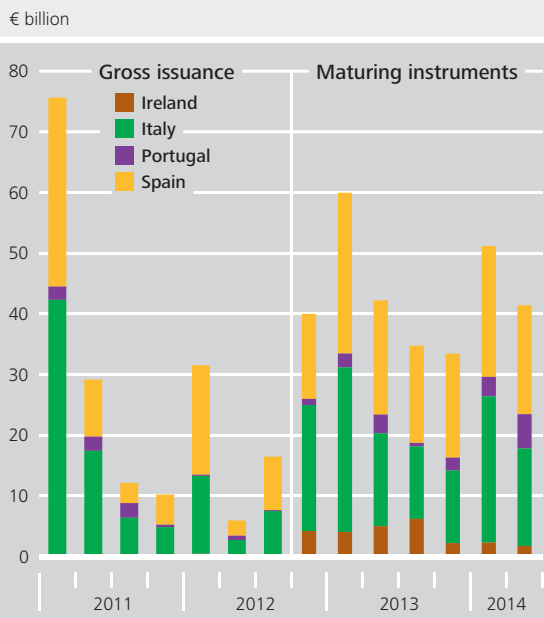
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lowered, the most important banks in that country are usually also downgraded. So far, it has not been possible to sever this link. Quite the opposite: the liquidity provided via the Eurosystem's three-year tenders briefly prompted credit institutions domiciled in Spain and Italy to make substantial net purchases of domestic

Once a sovereign's issuer rating has been lowered, resident banks are usually also downgraded.

¹² The figure for Ireland is strongly influenced by the funding activities of major international enterprises.

Bank debt securities: gross issuance and maturing instruments* Chart 2.10



Source: Dealogic. * Not including debt securities of institutions with a public mandate, debt securities of supranational institutions, issues with a maturity of less than 12 months or retained debt securities.
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ing a lasting impact. Thus, the volume of bank debt securities placed on the market in the second and third quarters of 2012 was significantly down on the beginning of the year (see Chart 2.10). For some institutions, this was probably partly the result of scheduled asset reductions aimed, for example, at further improving their capital ratios. Additionally, credit institutions used the three-year tenders to roll over maturing bank debt, thereby alleviating their acute funding difficulties. However, another contributory factor was the fact that many institutional investors have adjusted their benchmarks and reduced or even discontinued their purchases of (bank) bonds of crisis countries. The continuing pressure on many European banks' ratings could amplify this trend: investors might, for instance, decide to withdraw further investments should certain short-term or long-term rating thresholds be reached.

The fact that the three-year tenders only had a short-lived impact on the capital markets shows the limitations of central bank measures.

government bonds. This, in turn, is hindering their access to the financial markets.

Bank funding still disrupted

The interbank money market in the euro area is still seriously impaired. At times, banks in the programme countries were all but cut off from international investors. Risk premiums on senior unsecured bonds issued by Spanish and Italian banks also began to rise again significantly in April 2012 (see Chart 2.9). Only the announcement of new, far-reaching Eurosystem measures eased funding conditions in the second half of the year.

The fact that the three-year tenders only had a short-lived impact on the capital markets shows the limitations of central bank measures. It also lowered expectations of any future interventions hav-

Overall, the funding risks in the crisis countries' banking systems are thus likely to remain substantial, especially as Spain and Italy will already have to service huge volumes of maturing debt in the first quarter of 2013.

Measures designed to bolster bank solvency

In response to the changed assessment of sovereign credit risk, in December 2011 the European Banking Authority (EBA) instructed 71 large banks in the European Economic Area to ensure that they had a tier 1 capital ratio of 9%, after setting an additional buffer against sovereign risk holdings, by the end of June 2012. Excluding Greek banks and four other institutions that were undergoing public restructuring, the EBA's test found that 27 banks had a capital shortfall totalling €76 billion. Credit institutions in

Italy, Portugal and Spain accounted for €47 billion of this sum, primarily on account of their substantial holdings of government bonds. Since then, the 27 banks in question have taken direct measures that increase their capital resources by more than €83 billion. On top of this, the EBA reports that the capital base has been strengthened by €32.5 billion thanks to a reduction in high-risk assets. All the 12 participating German institutions met and surpassed the EBA's strict targets. However, three Portuguese banks as well as one Slovenian and one larger Italian institution had to make use of government recapitalisation facilities. Furthermore, external experts conducted in-depth analyses of the Spanish and Cypriot banking systems to quantify their aggregate recapitalisation requirements.

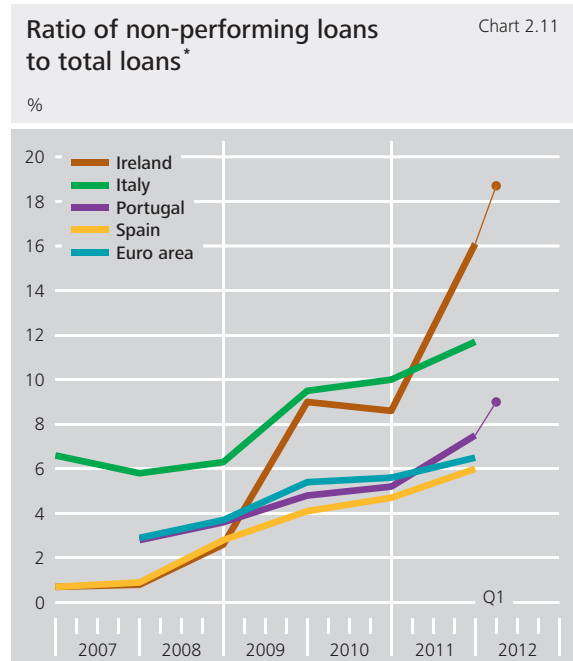
Balance sheet cleansing unavoidable

In all the crisis countries, the volume of non-performing loans is still on the increase (see Chart 2.11).¹³ Balance sheet cleansing via profit and loss, and restructuring measures in some cases, appear unavoidable.

Balance sheet cleansing via profit and loss, and restructuring measures in some cases, appear unavoidable.

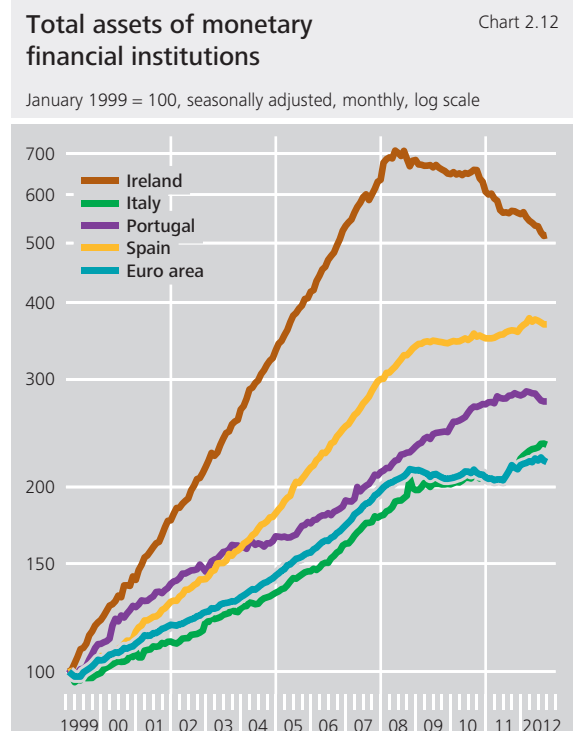
The European banking sector as a whole is in the process of reducing balance sheet risk exposures¹⁴ but the pressure to adjust is likely to be more intense in Ireland, Spain and Cyprus and, to a lesser extent, Portugal. The reduction in total assets, which in some cases had ballooned prior to the crisis (see Chart 2.12), is most evident in Ireland. In view of the exceptional problems affecting its banking sector, Ireland had conducted an independent assessment of high-risk assets early on, transferring the portion regarded as highly problematic to a resolution agen-

¹³ As regards the limited comparability of national data on non-performing loans, see Deutsche Bundesbank (2006), p 112 f.
¹⁴ See International Monetary Fund (2012c), p 31 f.



Sources: IMF, ECB and Bundesbank calculations. * Volume of non-performing loans before deduction of existing loan loss provisions. Comparability of the data is limited owing to differences in national definitions and rules and to statistical breaks within the countries' time series.

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Sources: ECB and Bundesbank calculations.

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Balance sheet exposure of the German banking system* to selected countries

Table 2.1

€ billion; as at June 2012 and changes compared with June 2011

Country	Borrowers									
	Government sector		Banks and money market funds		Other financial sector		Enterprises/households		Total	
		Change		Change		Change		Change		Change
Belgium	8.1	-0.6	11.4	- 4.1	1.1	- 0.7	7.0	+ 0.6	27.6	- 4.7
France	21.1	-2.7	47.9	- 1.9	8.9	+ 1.1	35.3	+ 1.9	113.2	- 1.6
Greece	0.2	-8.6	0.2	- 0.5	0.1	- 0.4	9.6	+ 0.4	10.2	- 9.0
Ireland	3.6	-2.2	1.6	- 2.4	21.3	- 5.3	5.0	- 0.6	31.6	- 10.5
Italy	38.0	-4.3	43.9	- 10.5	5.7	+ 0.7	15.8	- 0.3	103.4	- 14.3
Portugal	4.7	- 1.5	3.4	- 3.9	0.8	- 0.4	6.1	- 0.1	14.9	- 6.0
Spain	20.8	- 1.8	35.5	- 11.9	15.9	- 4.4	27.0	- 2.2	99.2	- 20.3
United States	84.7	+ 4.8	22.5	- 3.8	179.4	+ 9.9	114.0	+ 6.6	400.6	+ 17.5

Source: the Bundesbank's credit register of loans of €1.5 million or more. * Consolidated banking groups whose headquarters are domiciled in Germany; figures for Greece exclude KfW loans guaranteed by the German central government.

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cy at substantial markdowns. Moreover, what were once major banks are being resolved.

Spain took new steps during the course of this year to contain the after-effects of the credit-driven real estate boom. The country rolled out important measures designed to achieve clarity regarding the intrinsic value of assets, above all in the savings bank sector. Building on this, there are plans to transfer problem assets to a resolution agency. The implementation of a sector-specific adjustment programme, combined with financial assistance from the EFSF/ESM, might well be an important step towards restoring confidence in the Spanish banking system and ensuring that it functions properly.

Banks in countries deemed to be financially vulnerable are undergoing a far-reaching process of adjustment. This process will encompass the reduction of risk exposures both to the government of

the country in which banks are domiciled and, to a varying extent, the private sector as well. If necessary, it should also entail write-downs or spin-offs of problem assets so as to create leeway for new lending business. Given the current environment, new lending is likely to be impaired in banking sectors that require substantial balance sheet cleansing.¹⁵ To date, however, the weak credit growth in the crisis countries also appears to have been driven by frail demand for lending.

German financial system has sizeable exposures to Italy and Spain

German banks have further reduced their balance sheet exposures to the programme countries (see Table 2.1). In the case of Greece, the impact of the

¹⁵ See S Holton and F McCann (2012).

haircut in spring 2012 should be taken into account. As a result, German banks now have almost no direct exposures to the Greek state. Loans to Greek debtors are largely concentrated in the private non-financial sector. German banks are also continuing to scale back their relatively small holdings of Irish and Portuguese government bonds. At an aggregate €46.5 billion, the exposures and potential risks associated with debtors in these two programme countries are manageable.

German banks' financial ties with Italy and Spain are more much extensive. In mid-2012, their exposure to debtors in these countries totalled €202.6 billion, down €34.6 billion year on year. Claims on

An escalation of the sovereign debt crisis would have an adverse impact on the German financial system.

banks in Italy and Spain were reduced significantly, while exposures to enterprises and households declined only slightly. As a result, German credit institutions are

still heavily invested in these countries. The fact that German insurers have major holdings there as well completes the picture of extensive financial ties with these countries. An escalation of the sovereign debt crisis would thus have an adverse impact on the German financial system.

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The German banking system five years into the financial crisis

The financial and debt crisis has triggered far-reaching changes in the German financial system. In the initial phase from mid-2007 to the end of 2009, the major German banks with an international focus reduced their leverage by shortening their balance sheets and increasing their capital. In addition, they lowered their dependency on funding in US dollars.

Since the outbreak of the sovereign debt crisis in spring 2010, the group of 12 major German banks with an international focus have significantly reduced their exposure to debtors in Greece, Spain, Portugal and Italy. However, the German banking sector does not currently appear to be following a general strategy of abandoning its globalised business models. Thus the total exposure of the 12 major German banks with an international focus to non-residents fell only moderately by 1.2% between spring 2010 and mid-2012.

The resilience of the German banking system is considerably greater now than it was before the outbreak of the financial and sovereign debt crisis. Between spring 2008 and the third quarter of 2012, the tier 1 capital of the major German banks with an international focus increased from 8.3% to 13.6% of their risk-weighted assets.

This heightened resilience is also essential in view of the risk situation. Furthermore, German banks' profitability will face challenges over the medium term from a number of structural developments, such as intense competition in some domestic markets, pressure on lending to businesses owing to the growing trend towards corporate bond issuance, and the implications of necessary regulatory measures.

First adjustment phase: correction of past exaggerations

The international financial crisis began in the second half of 2007 with a slump in prices on the US real estate market. It peaked following the collapse of the investment bank Lehman Brothers in September 2008.

In the run-up to the financial crisis, a number of exaggerations spread through the financial system. Strong growth in the securitisation markets played a major part in this. Many financial institutions, including in Germany, were heavily leveraged and made themselves reliant on short-term funding. At the same time, this increased the interconnectedness and complexity of the international financial system.

Deleveraging and reduced interconnectedness

In the first phase of adjustment to the financial crisis from mid-2007 to the end of 2009, the major German banks with an international focus corrected earlier exaggerations. They first reduced their leverage by shortening their balance sheets and increasing their capital.

This involved reducing the interconnections within the banking system. In this phase, mutual mistrust among the market players led to a virtual breakdown in the interbank market. This was reflected in the balance sheets of 12 major German banks with an international focus¹ that did not offload any toxic assets or liabilities to resolution agencies in falling interbank claims and liabilities (see Table 3.1). Between mid-2007 and the end of 2009, claims on and liabilities to banks fell by over 35%, which was much more than the rate of contraction of total assets (13%).² These institutions' claims on non-banks shrank by the smaller margin of just under 15%. Domestic claims fell by roughly 5% and exter-

nal claims by as much as around 25%. During the same period, the category of major German banks with an international focus increased equity by just over 26%. However, this was mainly due to injections of government funds.

Lending to the real sector stable

While the group of 12 major German banks with an international focus thus slightly reduced their claims on domestic non-banks, this was not evidence of a credit crunch. Rather, the slowdown in lending was due, more than anything, to weak growth in the real economy. The financing needs of the export-oriented manufacturing sector declined as a result of the economic slump in 2009, for example.³ Moreover, lending by those categories of banks which were less affected by the global financial crisis remained stable. Savings banks' and credit cooperatives' lending to non-banks increased by 4.7% and 7.5% respectively between June 2007 and December 2009.

The German banking system thus remained fully functional in the midst of the international financial crisis.

In particular, the fear

The German banking system remained fully functional in the midst of the international financial crisis.

¹ In the 2010 Financial Stability Review, the category of major German banks with an international focus comprised 15 institutions. For the analysis in last year's Review, two institutions which had offloaded risky assets or liabilities to resolution agencies were no longer included. In the observation period covered by this Review, one institution was taken over by another bank in this category, which now therefore comprises only 12 credit institutions. These banks accounted for around 60% of the combined total assets of all German credit institutions in mid-2012.

² Accounting treatment in accordance with the German Commercial Code (HGB). The increase in other assets and liabilities is due chiefly to volatility-driven changes in the value of derivative financial instruments. Some credit institutions recognised these, also in HGB-based financial statements, at fair value even before the German Accounting Law Modernisation Act (Bilanzrechtsmodernisierungsgesetz) entered into force in 2010. As a rule, matched transactions were not offset against each other.

³ See Deutsche Bundesbank (2011), pp 59–78.

Balance sheet structure of major German banks*

Table 3.1

€ billion

Item	June 2007	December 2009	Change from June 2007	June 2012	Change from December 2009
Assets					
Claims on banks	1,105	716	- 389 (- 35.2%)	828	+ 111 (+ 15.6%)
Claims on non-banks	2,202	1,874	- 328 (- 14.9%)	1,858	- 16 (- 0.9%)
Debt securities and other fixed-income securities	1,284	1,018	- 265 (- 20.7%)	814	- 204 (- 20.1%)
Shares and other variable-rate securities	230	104	- 125 (- 54.6%)	84	- 20 (- 19.1%)
Aggregated other assets ¹	853	1,197	+ 343 (+ 40.2%)	2,022	+ 826 (+ 69.0%)
Liabilities					
Liabilities to banks	1,530	970	- 560 (- 36.6%)	1,016	+ 46 (+ 4.7%)
Liabilities to non-banks	1,824	1,590	- 233 (- 12.8%)	1,696	+ 106 (+ 6.7%)
Securitised liabilities	1,227	996	- 231 (- 18.8%)	839	- 157 (- 15.7%)
Equity	135	170	+ 35 (+ 26.2%)	169	- 0 (- 0.2%)
Aggregated other liabilities ¹	959	1,183	+ 224 (+ 23.4%)	1,886	+ 703 (+ 59.4%)
Total assets	5,674	4,910	- 764 (- 13.5%)	5,607	+ 697 (+ 14.2%)

* Consolidated banking groups with headquarters in Germany. The analysis covers 12 major German banks with an international focus which did not offload assets or liabilities to resolution agencies in the observation period. Accounting pursuant to the German Commercial Code. ¹ The increase in aggregated other assets and liabilities is due principally to changes in the fair value of derivative financial instruments. As a rule, matched transactions are not netted.

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of a widespread shortage in the supply of credit to the real economy failed to materialise.

US dollar funding gap narrowed

During the first phase of the financial crisis, German banks concentrated their deleveraging on assets denominated in US dollars. This has to be seen against the backdrop of a US dollar funding gap which had opened up in the wake of the financial crisis. For a time, the gap amounted to more than US\$200 billion for German banks, including their foreign branches and foreign subsidiaries (see Chart 3.1). This reflected a considerable currency mismatch for German banks' US\$-denominated claims.

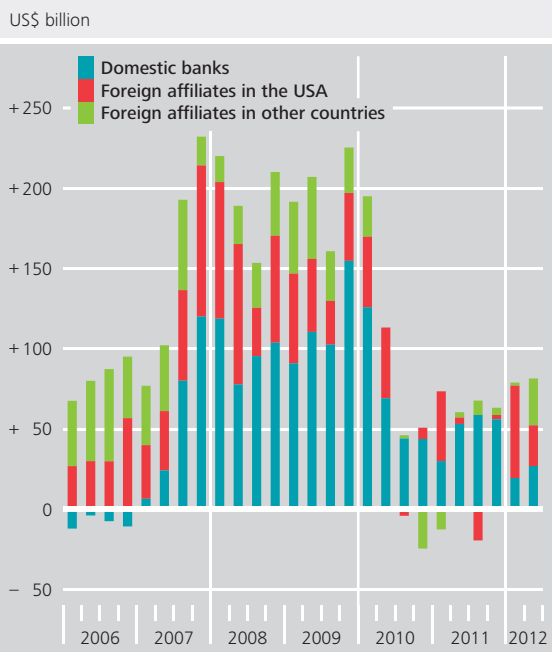
Until the end of 2010, German institutions chiefly reduced US\$-denominated securities and short-term

loans to banks. On the liabilities side, the outstanding volume of US dollar debt securities issued by German banks doubled to US\$211 billion between the beginning of 2005 and September 2012. Since the third quarter of 2010, the US dollar funding gap of all German banks, including their foreign branches and foreign subsidiaries, has been below its pre-crisis level; in mid-2012, it stood at US\$82 billion.

The German banking system has thus become less susceptible to shocks in the US dollar markets. Therefore, German banks have been less affected by the US money market funds' reduction of European exposures. The German banking system can cover the remaining need for US dollars through the swap markets.

The German banking system has become less susceptible to shocks in the US dollar markets.

US dollar funding gap* Chart 3.1



Sources: BIS and Bundesbank calculations. * US\$-denominated assets less liabilities of German domestic banks and their foreign affiliates (foreign branches and foreign subsidiaries).
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Legacy portfolios further reduced

Asset-backed securities (ABS) were at the epicentre of the first phase of the financial crisis. Since the investment bank Lehman Brothers collapsed, holdings of such securities have declined markedly even at those institutions which have not offloaded assets or liabilities to resolution agencies. The corresponding book value of the group of 12 major German banks with an international focus fell by more than €51 billion, or 30%, to around €116 billion between the beginning of 2010 and mid-2012.⁴ This was mainly due to maturities, repayments, redemptions and amortisations amounting to €47 billion. Following the large-scale impairment charges recognised at the start of the financial crisis, the remaining write-downs amounted to €4.8 billion. Sales of asset-backed securities by many of the credit institutions and simultaneous purchases by individual

banks, taken in isolation, even led to a slight net increase in ABS holdings.

Of the portfolios of asset-backed securities held by the group of 12 major German banks with an international focus in mid-2012, 51% (€58.5 billion) were residential mortgage-backed securities (RMBS), 21% (€24 billion) collateralised debt obligations (CDOs), and 8% (€9.7 billion) securitised student loans (see Chart 3.2). The vast majority of the credit institutions have reduced their positions in all investment segments.

Since the beginning of 2010, nearly all of the 12 major German banks with an international focus have seen a deterioration in the average rating of their portfolios of asset-backed securities. The share of paper with the highest credit rating (AAA), relative to the total book value, fell by 21 percentage points, while the share of paper in the non-investment grade segment rose by 9 percentage points.⁵ In the case of five credit institutions, at least a fifth of their paper is now rated as non-investment grade. The legacy portfolios of crisis-prone asset-backed securities continue to weigh on the German banking system.

The legacy portfolios of crisis-prone asset-backed securities continue to weigh on the German banking system.

⁴ These figures are taken from a regular Bundesbank survey on exposures in collateralised debt obligations and other structured securitisations.

⁵ As a percentage of the total book value, the rating spread in the first quarter of 2012 was AAA 39%, AA 20%, A 12%, BBB 6%, non-investment grade 20%, no rating 2%.

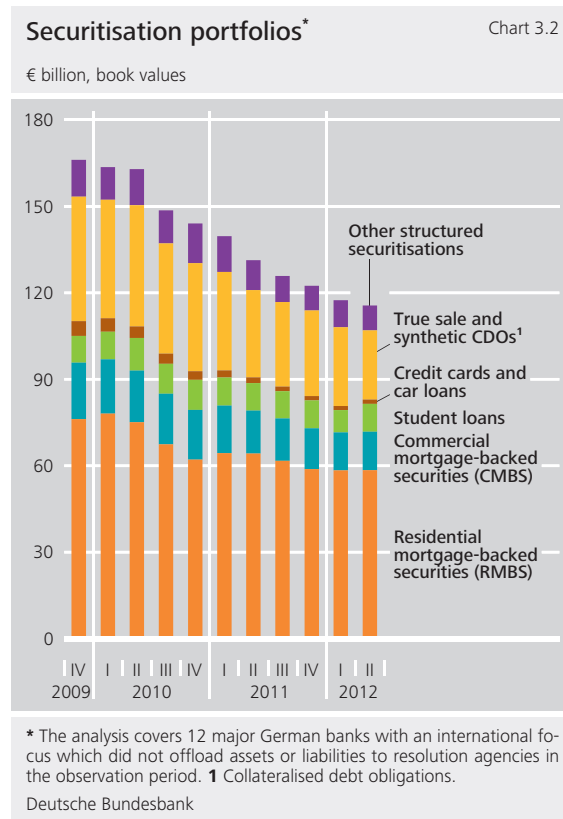
Second adjustment phase: sovereign debt crisis as a burden, robust economy as a partial compensation

The European sovereign debt crisis has been impacting on the financial markets since spring 2010. It has triggered new adjustments in the German financial system, which so far have been accompanied by a favourable domestic setting, with robust economic activity and – on the back of that – good credit quality.

Only small fall in cross-border claims

The European sovereign debt crisis is having a clear impact on the balance sheet structure of the German banking system. The balance sheets of German banks reflect the increasing fragmentation of the European banking system.⁶ Although the balance sheets of the 12 major German banks with an international focus show a 15.6% increase in claims on banks between the end of 2009 and mid-2012, this was inflated by a rise in balances with central banks. After adjustment for claims on the Bundesbank, the increase amounts to a mere 6%.

The adjustment to the sovereign debt crisis made by the group of 12 major German banks with an international focus is revealed by the marked reduction in their exposures to debtors from Greece (59%),⁷ Spain (14%), Portugal (21%) and Italy (4%) between mid-2010 and mid-2012.⁸ This lessens *per se* the danger of cross-border contagion effects. The debt sustainability of government budgets is now being seen in a much more nuanced way than at the launch of the monetary union. To some degree, this represents a correction of earlier erroneous assessments.

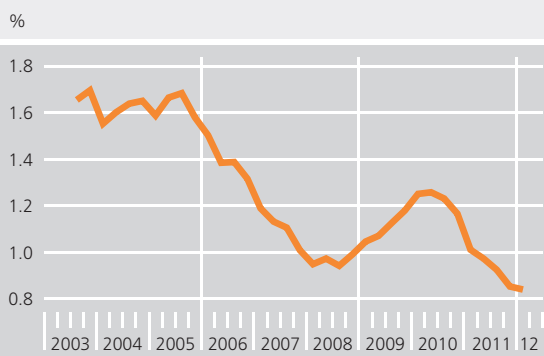


Yet the German banking sector does not currently appear to be following a general strategy of abandoning its globalised business models. The foreign lending business of the group of 12 major German banks with an international focus has fallen only moderately by 1.2% since the outbreak of the European sovereign debt crisis in spring 2010.⁹ By withdrawing to the confines of the domestic market, German banks would forfeit opportunities on foreign growth markets

The German banking sector does not currently appear to be following a general strategy of abandoning its globalised business models.

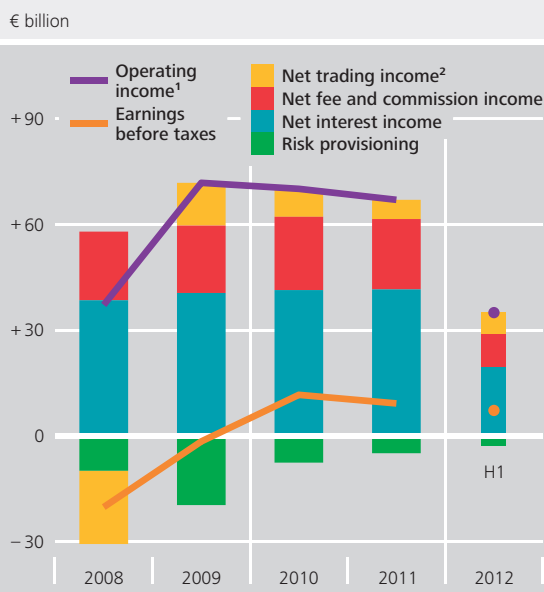
⁶ See Bank for International Settlements (2012), p 11 ff.
⁷ Principally as a result of the haircut on government bonds.
⁸ The reduction in exposures to non-residents is much more pronounced if institutions which have offloaded assets or liabilities to resolution agencies are included.
⁹ Data taken from the Bundesbank's credit register of loans of €1.5 million or more

Gross depreciation rates* Chart 3.3



* Write-downs and changes in specific provisions for non-performing loans as a ratio of German banks' total credit exposure to German non-banks (excluding general government). Annual rates are based on the four preceding quarters.
 Deutsche Bundesbank

Profit components* Chart 3.4



Sources: Corporate data and Bundesbank calculations. * Comprises IFRS data of 12 major German banks with an international focus which did not offload assets or liabilities 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 recognised at fair value.
 Deutsche Bundesbank

and chances for diversification, which would be an unwelcome development.

Robust economy bolstering profitability so far

Robust activity in the German economy since mid-2009 has proved to be a major factor underpinning the profitability of the group of 12 major German banks with an international focus.¹⁰ This has helped in coping with strains emanating from international business. Even in the crisis year 2009 the gross write-downs of all banks in Germany in domestic lending business showed only a marginal increase and remained clearly below their level at the peak of the last credit cycle in the years 2003 to 2005 (see Chart 3.3).

The volatile item net trading income, under which the high losses in 2008 also arose, showed a steady decline after picking up slightly for a time in 2009 (see Chart 3.4). As proprietary trading business on the capital market proved to be unsustainable in the crisis, a number of institutions have scaled back their trading activities.

A number of structural developments are posing a challenge to German banks' profitability over the medium term. First, competitive pressure will increase in some domestic markets. This is already becoming apparent in competition for customer deposits. The passive margin, ie the difference between interest received on a secure capital market investment and the interest

Challenge to German banks' profitability over the medium term.

paid for customer deposits, is declining, above all in the case of fixed-term deposits (see Chart 3.5). This development also has to be seen in the context of the current low-interest rate setting. Second, banks could be crowded out as financial intermediaries and thus lose some of their market share, say as a result of the trend towards corporate funding via the capital markets or insurers' incursions into

¹⁰ Source: corporate data (IFRS financial statements).

banks' traditional market segments. Third, essential regulatory measures will inevitably place a burden on banks' earnings, as did the contribution to the German restructuring fund (bank levy), which was payable for the first time in 2011, and the regulatory surcharge on the costs of synthetic lending business. These structural shifts raise new issues concerning the balance of banks' business segments. Credit institutions thus need to adapt their business models promptly to the changing environment.¹¹

■ Resilience markedly enhanced

The 12 major German banks with an international focus have clearly increased their tier 1 capital ratios. These banks are thus responding to the heightened demands of the capital markets, the regula-

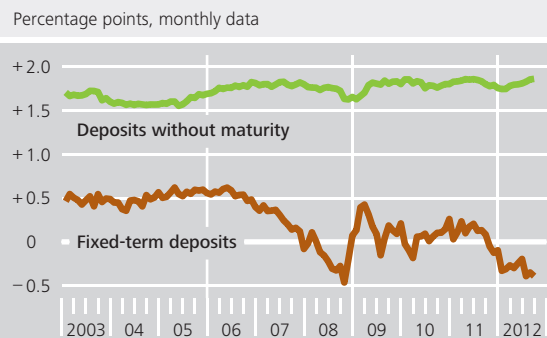
Between March 2008 and September 2012, the tier 1 capital of the group of major German banks with an international focus increased from 8.3% to 13.6% of risk-weighted assets.

tory requirements of the European Banking Authority (EBA) and the forthcoming Basel III capital rules, which have already been partly anticipated. Between March 2008 and September 2012, the tier 1 capital of the group of major German banks with an international focus increased from 8.3% to 13.6% of risk-weighted assets (see Chart 3.6). After adjustment for a statistical break in the fourth quarter of 2011,¹² the increase is even more marked.

Since March 2008, the leverage ratio – measured as the ratio of total assets, pursuant to the German Commercial Code, to tier 1 capital – of the group of

Since March 2008, the leverage ratio – measured as the ratio of total assets, pursuant to the German Commercial Code, to tier 1 capital – of the group of

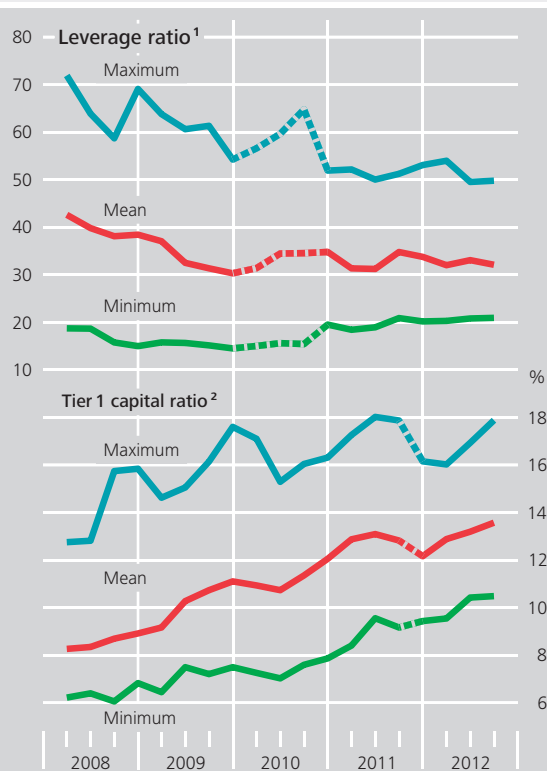
Interest rate margins* in deposit business Chart 3.5



Sources: Bloomberg and Bundesbank calculations. * Calculated for German banks as the spread over a synthetic portfolio of safe investments with the same payment profile.

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Leverage ratio and tier 1 capital ratio* Chart 3.6



* The analysis covers 12 major German banks with an international focus which did not offload assets or liabilities to resolution agencies in the observation period. **1** Total assets as a ratio of tier 1 capital; 2010: transition period pursuant to the German Accounting Law Modernisation Act (Bilanzrechtsmodernisierungsgesetz). **2** Tier 1 capital as a ratio of risk-weighted assets; from end-2011, revised valuation owing to the third EU Capital Requirements Directive (CRDIII).

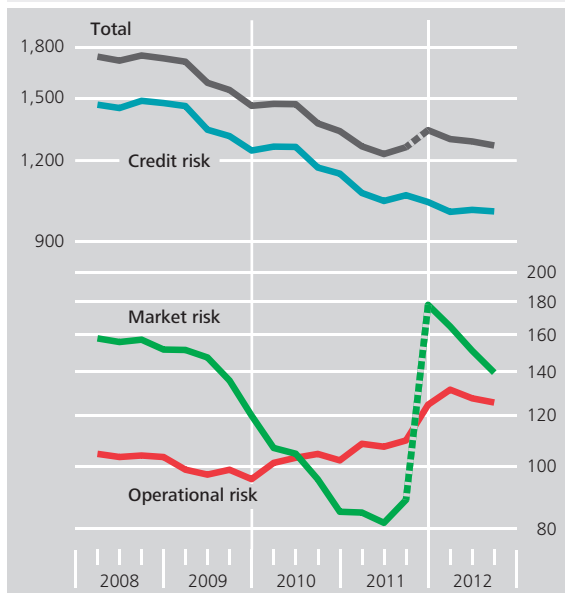
Deutsche Bundesbank

¹¹ For general comments on the sustainability of business models, see A Dombret (2012).

¹² The increased capital requirements for market risk pursuant to the third EU Capital Requirements Directive of 24 November 2010 (CRD III) led to an increase in risk-weighted assets.

Risk-weighted assets* Chart 3.7

€ billion, log scale



* The analysis covers 12 major German banks with an international focus which did not offload assets or liabilities to resolution agencies in the observation period. From end-2011, revised valuation of market risk owing to the third EU Capital Requirements Directive (CRD III).

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12 major German banks with an international focus has fallen from 43 to 32 (see Chart 3.6). Excluding a statistical break due to the entry into force of the German Accounting Law Modernisation Act (*Bilanzrechtsmodernisierungsgesetz*) in 2010,¹³ the decline would have been even greater.¹⁴ The average leverage ratio was lowered, in particular, by conditions set by the European Commission to reduce total assets in connection with reviewing state aid.

In mid-2012, the credit cooperatives and savings banks had a distinctly lower tier 1 capital ratio than the big banks considered here of 11.2% and 12.3% respectively. They additionally possess undisclosed reserves, however. In mid-2012, their average leverage ratios, at 16.6 and 14.9, were well below the mean figure for the 12 major German banks with an international focus. The lower leverage of the cooperative and savings banks is due to their business model, which is geared to traditional lending business.

Furthermore, they make less use of derivatives, which extend the balance sheet.

Fewer risk-weighted assets

The level of regulatory capital to be held by the 12 major German banks with an international focus has declined since March 2008.¹⁵ This was due, first of all, to a shortening of the balance sheet. As exposures to banks have been reduced and the percentage of loans with a low probability of default has increased, the volume of risk-weighted assets has contracted markedly, and hence the required level of regulatory capital has also declined (see Chart 3.7). Since the beginning of 2009, the average risk weight of the exposures held by the 12 major German banks with an international focus has fallen. The nascent economic upturn in Germany lowered the risk weight for exposures to enterprises. In the fourth quarter of 2011, risk-weighted assets temporarily rose. However, this was not due to any change in the economic risk situation, but rather to a change in the valuation of market risk pursuant to the third EU Capital Requirements Directive of 24 November 2010 (CRD III).

Robust domestic economic activity has helped the German banking system to cope with the strains from problem business areas. It is currently helping to cushion the impact of the international shipping crisis, for example. Some institutions are being doubly affected by this crisis. First, it is increasing the riskiness of the related exposures. Second, exchange rate changes are increasing the nominal euro value of loans that were granted in US dollars. In mid-2012, the group of 12 major German banks with an international focus

¹³ Recognising securities held in the trading portfolio, including derivatives, at fair value in the financial statement drawn up in accordance with the German Commercial Code led to a sharp increase in total assets.

¹⁴ The temporary rise in the leverage ratio to 35 in the third quarter of 2011 mainly reflects a sharp increase in the item "derivative financial instruments in the trading portfolio".

¹⁵ Owing to the changeover to the Basel II capital requirements, there are no comparable figures for the period before 2008.

held a portfolio of ship loans worth €97.8 billion.¹⁶ This corresponds to just under 58% of their aggregate tier 1 capital. Some banks are currently withdrawing from the funding of shipping, either because

Robust domestic economic activity has helped the German banking system to cope with the strains from problem business areas.

of conditions imposed by the EU on granting state aid or owing to a strategic realignment of their core business. This withdrawal is coinciding with a difficult situation in the case of

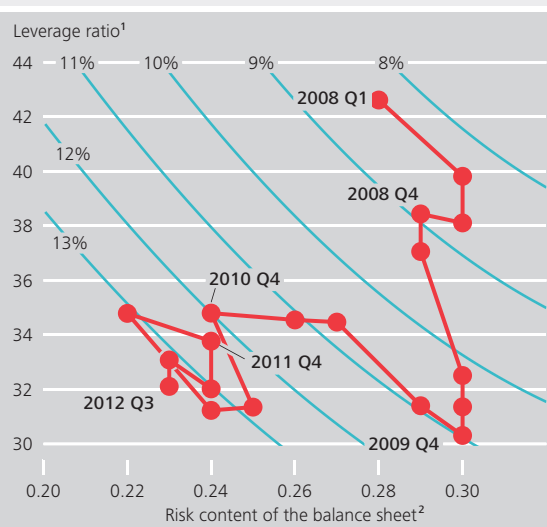
some closed shipping funds. Taken together, these two factors might make it more difficult for shipowners to renegotiate and roll over loans and thus further heighten the risk of default in this industry.

Market risks mixed

The market risks reported by the German credit institutions have undergone mixed developments since the outbreak of the financial crisis. The risk from changes in credit spreads, ie the difference between the risk-free rate of interest and the return on risky investments, already played a major role for some banks prior to 2010.¹⁷ Since the onset of the European sovereign debt crisis, it has become considerably more important owing to the price fluctuations of government bonds.

Interest rate risk, on the other hand, has been largely unchanged since it was first logged in 2003.¹⁸ It results from traditional banking business, ie the granting of long-term loans which are refinanced by short-term customer deposits. Large banks with an international focus pass on much of their interest rate risk to insurers and other financial intermediaries, eg in the form of interest rate swaps. By contrast, many savings banks and credit cooperatives deliberately incur this risk in order to generate income from maturity transformation or to avoid the cost of hedging. The magnitude of maturity

Leverage ratio versus risk content of the balance sheet* Chart 3.8



* The analysis covers 12 major German banks with an international focus which did not offload assets or liabilities to resolution agencies in the observation period. The isoquants represent the tier 1 capital ratio. **1** Total assets as a ratio of tier 1 capital; 2010: transition period pursuant to the German Accounting Law Modernisation Act (Bilanzrechtsmodernisierungsgesetz). **2** Ratio of risk-weighted assets to total assets. Deutsche Bundesbank

transformation is monitored as part of ongoing prudential inspections.

In the middle of the past decade, equity price risk posed a substantial threat – especially to the larger, private commercial banks. Since then, its importance has steadily declined; like the risk from changes in volatility and unmatched foreign exchange positions, it is now, if anything, of secondary importance.

Resilience as reflected in the adjustments

Chart 3.8 illustrates how the determinants of resilience interact. In March 2008, the 12 large German

¹⁶ Data from the Bundesbank's credit register of loans of €1.5 million or more.
¹⁷ This type of risk has been covered by prudential requirements since 2006.
¹⁸ See C Memmel (2011), p 10 ff.

banks with an international focus had a tier 1 capital ratio (blue isoquants) of 8.3%. This low capital ratio lies in the top right of the chart.

Since then, these institutions have enhanced their resilience. This is reflected in a downward, leftward movement. The two phases of the financial and sovereign debt crisis can be clearly identified. Up to the end of 2009, these banks raised their tier 1 capital ratio by reducing their leverage. This deleveraging is reflected by a downward movement in Chart 3.8. The institutions reduced their total assets and increased their capital.

Since spring 2010, the leverage ratio of the group of 12 major German banks with an international focus has remained virtually constant, but institutions were able to reduce the risk content of their balance sheets significantly. This is reflected in the chart as a leftward movement, which is due, above all, to robust economic activity in Germany.

The resilience of the major German banks with an international focus is significantly greater now than it was before the outbreak of the financial and sovereign debt crisis.

On the whole, the resilience of the major German banks with an international focus is signifi-

cantly greater now than it was before the outbreak of the financial and sovereign debt crisis. In view of the risk situation and limited earnings prospects, this is also essential.

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Low interest rates and the search for yield: a challenge for insurers and banks

Central bank interest rates and government bond yields in major industrial countries with a high credit rating have fallen to very low levels. The longer such a low-interest rate environment persists, the greater the incentives to shift financial resources away from low-interest-bearing, relatively safe investments to higher-yielding but riskier investments. The search for yield is already intensifying, as illustrated by the significant fall in the yields and risk spreads of European corporate bonds, despite clear signs of an economic slowdown and higher default risks.

The low interest rates for instruments with the highest credit ratings place a strain on insurance companies, which are conservative in their behaviour. For example, there was a further decline in the net return on investment undertaken by German life insurance companies. One conceivable reaction would be for them to tap and expand their presence in new business areas, such as the funding of infrastructure and real estate projects and direct lending to customers. This would entail increased risks for the insurance sector. However, the fall in the proportion of risky investments made by German insurance companies shows little evidence yet of a pronounced search for yield.

The sustained period of low interest rates could permanently change continental Europe's financial system if it triggers an increase in the share of capital market funding in the debt of non-financial corporations. If this were to happen, banks might not only come under pressure from declining net interest margins and fiercer competition from insurers but also from greater disintermediation.

Low-interest rate environment encourages greater risk-taking

Low money market and capital market interest rates, coupled with the ample liquidity now available in the international financial system, have been instrumental in mitigating the effects of the financial and sovereign debt crisis. This has impacted positively on credit demand, and investments in financial assets considered to be particularly safe are losing their attractiveness for investors. Overall, the prevailing climate therefore encourages risk-taking. To a certain extent, this is welcome and serves to support the still fragile real economic recovery.

However, the low yields on government bonds simultaneously reflect the ongoing inclination of many investors to park disposable funds in selected safe havens. The desire to adjust early to new regulatory provisions which favour investment in financial assets with a particularly high credit rating and above-average liquidity status could further intensify this behaviour. At the same time, a large proportion of longer-term institutional investors are exercising caution with regard to investments in euro-area crisis countries and, in many cases, investment guidelines and benchmarks have been adjusted accordingly.

Moreover, a variety of factors have triggered a decline in the capital market funding of financial institutions. These include the fact that in some countries many banks' access to the markets is still severely impaired as well as the preference for more stable forms of financing such as customer deposits. In addition, the low cost and ample availability of central bank money, also of a longer-term nature, have reinforced this trend. In the course of 2012, these factors are likely to have played a decisive role in triggering large-scale (net) redemptions of bank debt securities in the euro area.¹ The funds which were freed up in this manner are now available to

investors to redeploy them in other market segments, thus increasing investment pressure in these areas.

Sandwiched between more selective investment strategies and amply available liquidity, low interest rates can produce undesirable side-effects, especially if they persist over a longer period of time. For instance, financial intermediaries who continue to offer their customers or shareholders the prospect of high nominal returns might take on exposures which subsequently prove particularly risky. Indications of such a search for yield have increased of late.

Signs of a search for yield in the corporate bond markets

Debt instruments issued by non-financial corporations active in the capital market are one of the targets in this search for yield. Issuance in euro-area corporate bond markets has been high since 2009. Up to October 2012 alone, the volume of bonds issued came to around €210 billion gross (see Chart 4.1),² of which just under 60% emanated from German and French enterprises. In addition, a breakdown of debt instrument issuance by rating highlights a growing willingness on the part of investors to incur exposures involving debt instruments with a medium-grade or poor credit quality; around 40% of the total issuance related to companies assigned a BBB credit rating or lower.

In the international corporate bond markets, yields are close to historic lows amid major disparities within the euro area. The average yield on a

¹ Up to October 2012, the corresponding level of (net) repayments of bank debt securities stood at around €240 billion. Source: Dealogic.

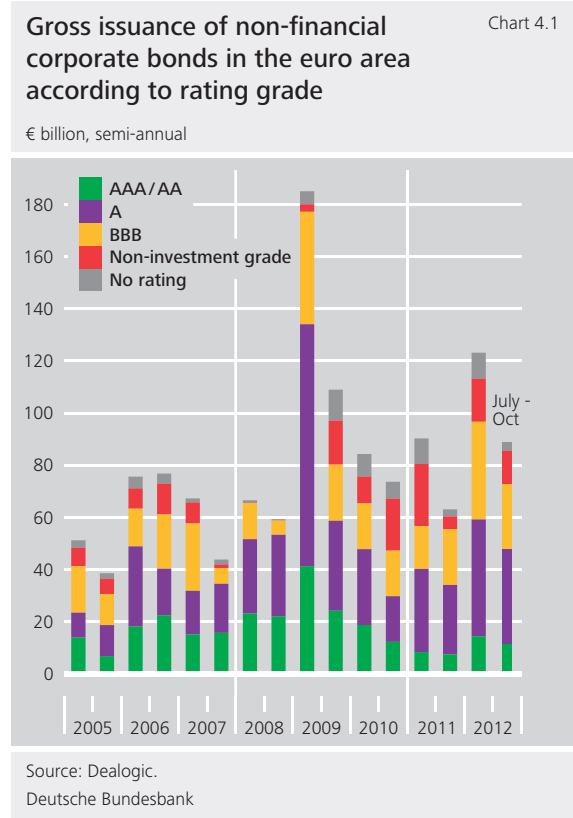
² Even if redemptions are taken into account, very high net issuance figures are evident for the current year (see also Chart 4.6 on p 51). During the same period, gross issuance figures for the United States were also very high (around US\$550 billion). Source: Dealogic.

BBB-rated debt instrument in the euro area is now only 2.2%, and on an A-rated bond it is as low as 1.3%. Risk spreads over government bonds have likewise fallen considerably during 2012. However,

The high valuations of corporate bonds stand in contrast to the gloomier economic outlook.

the high valuations of corporate bonds stand in contrast to the gloomier economic outlook. In the course of 2011 and 2012,

far more companies have been downgraded by rating agencies than have been upgraded. In a risk scenario, weaker borrowers can expect soaring default rates up to mid-2013 (see Chart 4.2).³ The lack of roll-over financing might contribute to this development as high refinancing risks are looming in the corporate bond and syndicated loan markets in the coming years. In the euro area, a large share of this relates to borrowers in the crisis countries.⁴ Seen in this light, an increase in downside risks for investors in the corporate bond markets is also already evident in the short term.



Issuers of promissory notes have also benefited from the growing demand for investments in corporate debt. Holdings of these instruments, which are commonly used in Germany, has risen rapidly since the beginning of the financial crisis and stood at around €70 billion in mid-2012. Given issuance volumes of, at times, less than €20 million, this financing instrument is also an option for smaller enterprises. For many investors, measurement at historical costs in the balance sheet contributes to the attractiveness of promissory notes. However, such an approach makes it more difficult to estimate the (balance sheet) risks arising from this already relatively opaque market segment of unsecured corporate financing. The rating assigned in line with banking practice to around half of the paper issued is BBB, to use the terminology applied by rating agencies, while 38% is non-investment grade.⁵

Promissory notes are targeted at institutional investors, whereas the German market for SME bonds has mainly attracted the interest of retail investors. Overall, gross issuance of SME bonds on five German stock exchanges between 2010 and October 2012 remained low, at €3.0 billion in nominal terms. Many of these issuers have a me-

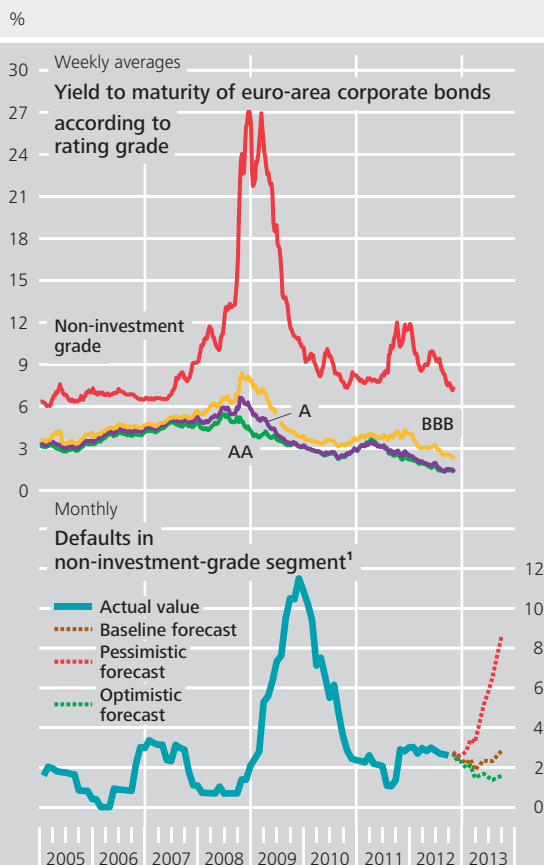
Investors should not base their investment decisions exclusively on external credit assessments.

³ Over the last two years, the proportion of less-creditworthy borrowers (non-investment-grade segment) faced with the threat of a breach of covenants has expanded. Furthermore, a significant proportion of low-rated issuers only have access to a relatively small volume of liquidity. The risks are likely to be exacerbated if revenues and cash flows decline as a result of a sustained deterioration in the economy. See Moody's (2012).

⁴ Of the total maturities for 2013, amounting to roughly €340 billion (around €50 billion of which is non-investment grade), Spanish borrowers alone account for €50 billion (€6 billion of which is non-investment grade). Source: Dealogic.

⁵ See Capmarcon (2012).

Indicators relating to the European non-financial corporate sector Chart 4.2



Sources: Bloomberg, Bank of America, Merrill Lynch and Moody's. ¹ Relates to bonds and loans and, in addition to insolvencies, encompasses inter alia loan delinquencies in connection with both interest and repayments. Moving average over the last 12 months.

Deutsche Bundesbank

dium-grade or poor credit rating and are obliged to pay high interest rates. Insofar as possible, investors should base their investment decisions regarding both promissory notes and SME bonds on their own estimation of the relevant risk-return profile and not rely exclusively on external credit assessments.

Varied willingness to assume risks

Overall, the financial system still appears to have a low appetite for risk and the related returns. Banks, in particular, continue to repair their balance

sheets.⁶ In tandem with the new regulatory requirements⁷ that are on the horizon, this situation tends to inhibit the incurrence of new, high-risk exposures. For instance, the leverage of large, complex financial institutions remains well below its pre-crisis level.

Risk assumption by German and international banks in the commodities markets has, if anything, fallen of late, possibly also on the basis of reputational risk. By contrast, the relative importance of foreign exchange risks in institutions' trading books has been rising since as far back as the end of 2008. Parallel to this, there has been a boost in incentives for currency carry trades in view of the sizeable interest rate differential between emerging market economies or a small number of resource-rich countries and the major western industrial countries (see Chart 4.3).

At the same time, parts of the international financial system are characterised by a high demand for investments in hedge funds. Institutional investors, which comprise not only banks but also insurers and pension funds, nominally stepped up their investment in the hedge fund sector by about two-thirds to around US\$1.5 trillion between the end of 2006 and the end of 2011. This trend towards intensified investment in hedge funds will probably continue throughout 2012.⁸ Investment risks are likely to rise, despite the potential benefits of diversification, if a larger proportion of these investments is actively managed, specifying relatively ambitious yield targets, which are typically set in the high single-digit range in the case of hedge funds.

⁶ See Deutsche Bundesbank (2011), p 36 f.

⁷ See also p 94 of the chapter entitled "Progress in reforming financial market regulation".

⁸ See Citi Prime Finance (2012), p 26 and Financial Services Authority (2012), p 17.

German insurers: lower investment income and policyholder profit participation

The low interest rates are placing a particular strain on conservative investors such as insurance companies, which generally hold a large part of their investments in relatively safe interest rate instruments. For instance, the net return on investment of 4.3% achieved by German life insurers in 2010 dwindled further to 4.1% in 2011.⁹ The low-interest rate environment is therefore being reflected ever more strongly in the yield on investments undertaken by life insurance companies.

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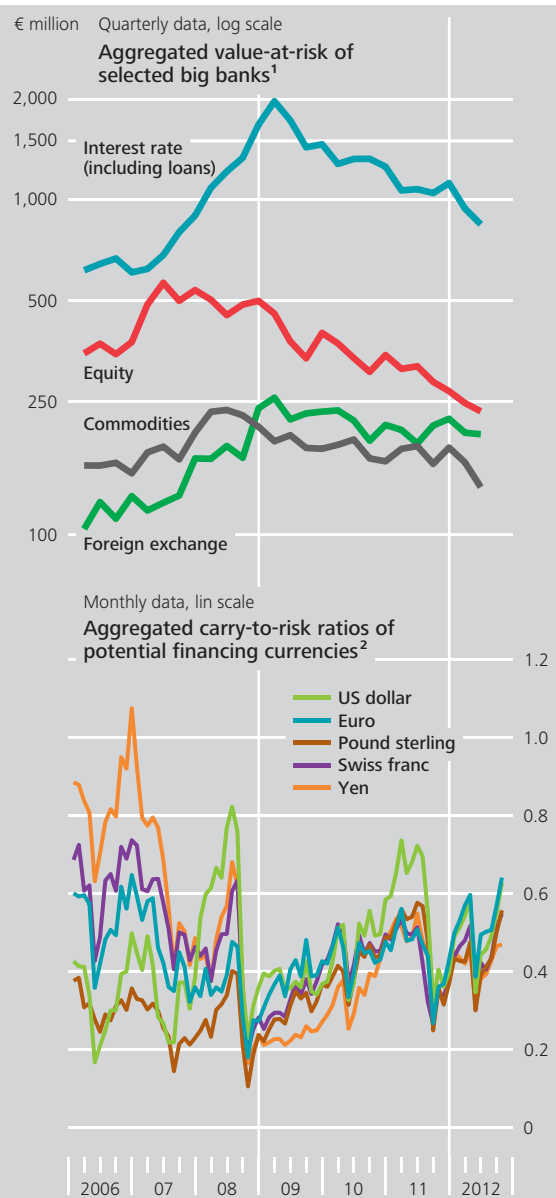
The profit participation share which life insurance companies grant their customers has shrunk accordingly. For instance, the current return fell by an average of 15 basis points to 3.94% across all tariffs and generations in 2011. However, the average guaranteed return in German life insurers' portfolios has fallen by only 7 basis points to 3.23% of late.¹⁰ The German Federal Ministry of Finance has responded to the persistent low-interest rate environment by once again lowering the maximum technical interest rate for new contracts, most recently from 2.25% to 1.75% at the beginning of 2012.

Moreover, in order to ensure that insurance companies remain able to finance future obligations

⁹ See German Insurance Association (Gesamtverband der Deutschen Versicherungswirtschaft e.V. or GDV) (2012), Table 42.
¹⁰ See Assekurata (2012), p 5 ff. The current maximum technical interest rate applies only to new contracts. The share of obligations with a guaranteed technical interest rate of 4% has made up less than 25% of the industry's portfolio since 2010. Nevertheless, the average guaranteed return is still falling only very slowly. For more information regarding the impact of various interest rate scenarios on the financing of policyholders' profit participation shares, see also A Kablau and M Wedow (2011).

Indicators of risk assumption in individual market segments

Chart 4.3



Sources: Bloomberg, JP Morgan and Bundesbank calculations. **1** Corresponds to the size of the loss for which, given a holding period of one day, there is a 99% probability that it will not be exceeded. Comprises the following systemically important financial institutions: Bank of America/Merrill Lynch, Barclays, BNP Paribas, Citigroup, Crédit Agricole, Credit Suisse, Deutsche Bank, Goldman Sachs, JP Morgan, Morgan Stanley, Société Générale and UBS. **2** Indicators of the attractiveness of currency carry trades. Calculated for individual currency pairs as the quotient of the difference between one-month interest rates and the implied volatility of currency options with a one-month maturity. The aggregated carry-to-risk ratios are based on simple averages of the respective target currencies (AUD, BRL, IDR, INR, MXN, NZD, RUB and ZAR).

under life insurance and annuity contracts, the Federal Ministry of Finance has introduced an “additional interest provision” to the premium reserve. If the predefined reference rate falls below the level of the guaranteed return for a particular policy, since 2011 insurers have been obliged to increase their premium reserve. In 2011, the reference rate was 3.92%, which meant that appropriate provisions had to be set up for the product generation with a guaranteed return of 4.00%.¹¹ Measured by the arithmetic average of the premium reserves, these additional provisions accounted for a share of 0.24% in 2011. Based on the annual business figures for 2010, for the market as a whole this was equivalent to around €1.5 billion or an average share of about 10% of gross profits generated.¹²

It is fair to assume that, in the coming years, life insurance companies will continue to strengthen their reserves by setting up additional interest provisions. Using the Regulation on the Principles Underlying the Calculation of the Premium Reserve

In the coming years, life insurance companies are likely to continue to strengthen their reserves by setting up additional interest provisions.

as a basis, it can be derived that the reference rate will fall by about 27 basis points in 2012. If, in a protracted period of low interest rates, the yield on investments is also no longer sufficient to cover the guaranteed return in future, the additional interest provision set up as a precaution may help to soften the impact of long-term interest guarantees. The most recent survey conducted by the Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht* or BaFin) in 2011 indicated that the sector’s investment income in the defined low-interest rate scenario would be sufficient to fund the guaranteed return for a total of 15 years.¹³

Pensionskassen and other occupational pension facilities are exposed to similar risks arising from the

low-interest rate environment. A survey of the German Pensionskassen conducted by BaFin in 2011 showed that they will be able to pay the benefits promised to persons with pension entitlements even if the period of low interest rates persists.

Signs of a realignment of insurers’ capital investment strategy

One of the dangers of the prevailing low-interest rate environment coupled with high interest obligations vis-à-vis customers is the potential assumption of excessive risks. This would have to be viewed critically in terms of financial stability. In 2011, German life insurers’ capital investments grew by just over €8 billion year on year, reaching almost €743 billion. However, there has not been a trend towards greater risk assumption in the investment portfolio of late. Quite the opposite: the share of investments in instruments classified as risky has contracted significantly as the financial crisis has progressed, falling from 16.2% at the end of 2007 to 10.7% at the end of 2011. The corresponding risk asset ratio has thus remained well below the maximum permissible value of 35%. The percentage of bonds and debentures in the investment portfolio of life insurance companies increased from 82.3% at the end of 2007 to 89.3% at the end of 2011; the share of higher-yielding and riskier investment categories remained virtually unchanged year on year (see Chart 4.4).¹⁴

¹¹ In March 2011, the Federal Ministry of Finance defined the additional interest provision in section 5 of the Regulation on the Principles Underlying the Calculation of the Premium Reserve (Deckungsrückstellungsverordnung). This definition is based on a comparison of the guaranteed return with a reference interest rate derived from European government bonds with an AAA rating and a residual maturity of ten years. This reference rate is calculated as an arithmetic average over a reference period of ten years. If the reference rate is lower than the guaranteed return, additional interest provisions are to be set up for the policies concerned.

¹² See Assekurata (2012), p 79.

¹³ See BaFin (2012a), pp 126-127.

¹⁴ See GDV (2012), Table 42 as well as BaFin (2012a), p 115 ff.

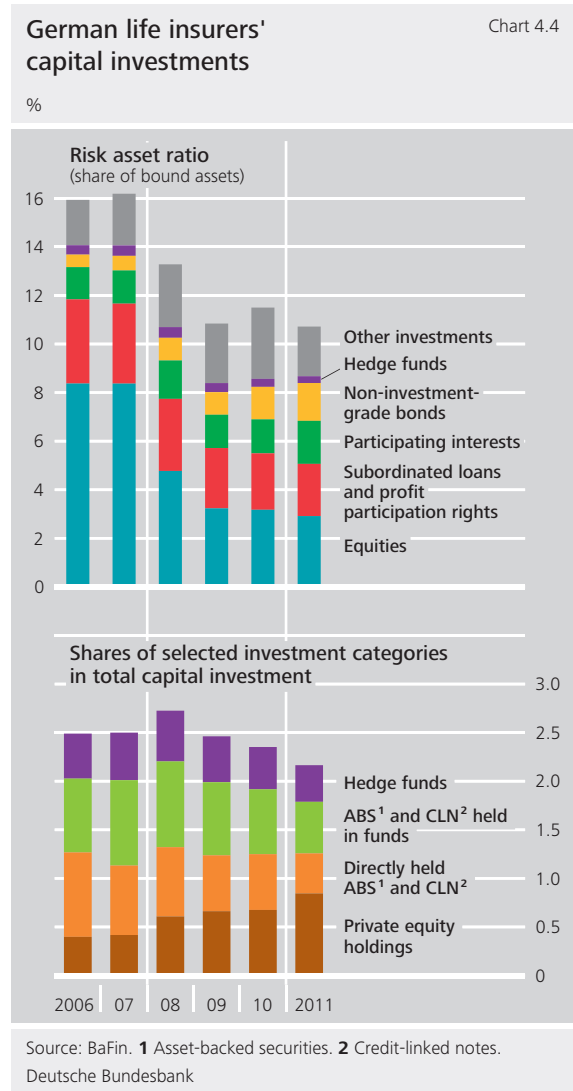
However, the low-interest rate environment is leading insurers to pursue new investment routes and enter into greater competition with banks. Surveys and company information have revealed a

The low-interest rate environment is leading insurers to pursue new investment routes and enter into greater competition with banks.

greater willingness to engage in more lucrative investments or branch out into new lines of business. This includes the funding of infrastructure projects, direct lending to enterprises and retail customers, and commercial real estate financing, either directly or via specialised funds. Since April 2012, this development has been additionally fostered in the area of private housing financing as insurance companies are now also able to directly offer their customers loans under the promotional programmes of the KfW banking group.

At present, the credit segment still constitutes only a relatively small part of the German primary insurers' investment portfolio: in June 2012, residential mortgage-backed loans accounted for 4.1% (€49.9 billion) of total investments, loans to enterprises (excluding banks) accounted for 0.8% (€9.5 billion) and commercial mortgage-backed real estate loans accounted for 0.5% (€5.7 billion).¹⁵ Life insurance companies also assumed a subordinate role in terms of housing loan disbursements in 2011 (€5.2 billion and a market share of 3.8%).¹⁶ Nevertheless, real estate market experts are expecting to see insurers grow their exposure to German properties in the coming year.¹⁷

A significant risk in connection with the pursuit of direct and indirect lending activities by insurance companies could arise from a lack of adequate risk management systems. Appropriate structures must be put in place in line with the expansion of business operations. It also remains to be seen to what extent insurers will, in future, strive to improve their return on investment by entering into liquidity



swaps with banks, thus possibly leading to the creation of contagion channels between the banking sector and the insurance sector (see also the box entitled "Liquidity swaps: a potential contagion channel between the banking and insurance sectors" on pages 48 and 49).

¹⁵ See BaFin (2012b).

¹⁶ See the Association of Private Bausparkassen (Verband der privaten Bausparkassen e.V.) (2012).

¹⁷ See the Centre for European Economic Research (Zentrum für Europäische Wirtschaftsforschung or ZEW) (2012). See also the chapter entitled "German housing market gaining momentum" on pp 55–65.

Liquidity swaps: a potential contagion channel between the banking and insurance sectors

A liquidity swap (also termed a collateral swap or a collateral upgrade trade) is a special form of exchange transaction which is defined by the existence of a liquidity spread between the assets exchanged. A liquidity swap involves, for example, exchanging illiquid or less liquid securities held by a bank against highly liquid securities held by an insurer for a limited duration and with a haircut. Banks can use the more liquid securities lent to meet regulatory liquidity requirements and secure short-term funding. Insurers can achieve higher returns on their capital investments through the temporary exchange.¹

Liquidity swaps are being closely scrutinised, for example by the European Insurance and Occupational Pensions Authority (EIOPA),² as they may entail systemic risks. They may not only have potential procyclical effects, for instance because haircuts are dependent on the (market) valuation of the securities exchanged, but may also increase the interconnectedness of the banking and insurance sectors, thus possibly accelerating the transmission of shocks across the financial system.

The Bundesbank's contacts in the market indicate that, in the coming years, these liquidity exchange transactions will gain in significance in the financial markets as well as among German banks and insurers. Depending on the size of the institutions involved, the volume of individual transactions may range from €50 million to €2 billion. The maturities agreed vary between six months and five years. In many cases, liquidity swaps include stipulations allowing a predefined exchange of securities over the contract period. Some transactions may have complex

structures and require careful documentation by the counterparties involved.

A survey conducted by the Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht* or BaFin) in 2012 shows that, at present, only very few insurance companies in Germany undertake liquidity swaps. Transfers of liquidity in the form of securities lending transactions conducted with banks play the greatest role for the group of insurers active on this market. Their prime motive is to generate additional revenue via the fees charged for the securities lending operations.

According to the insurance companies surveyed, they receive, above all, government bonds and investment-grade structured products as collateral. The insurers reported a general overcollateralisation of the securities lent. The maturity of the transactions is mostly less than one year, although it can also be up to five years. In the first half of 2012, liquidity swaps accounted for no more than 0.1% of the gross income from investments achieved by the respective insurance companies active in this segment. As a proportion of the insurers' capital investments too, in mid-2012 the share of the transactions surveyed was relatively small, at mostly less than 1%.

¹ Securities lending transactions are usually also classified as liquidity swaps if one counterparty thereby improves its liquidity position.

² During a recent hearing at the Committee on Economic and Monetary Affairs of the European Parliament, the chairman of EIOPA stressed that liquidity swaps are being monitored as part of a coordinated approach to dealing with the financial crisis. See G Bernardino, Hearing at the Committee on Economic and Monetary Affairs of the European Parliament, Brussels, 19 September 2012.

The findings derived by banking supervisors from another recent survey conducted at several larger German institutions reveal that the banks have other counterparties which they consider to be of much greater importance than insurance companies. The banks surveyed undertake liquidity swaps primarily with other banks or other financial intermediaries, such as money market funds. At the end of 2011, such transactions undertaken with insurers made up, on average, less than 0.5% of overall liquidity swaps.

Available knowledge on this special market segment makes the dangers to financial stability as

a whole as well as the exposure to spillover risks between the insurance and banking sectors in Germany appear negligible at present. Moreover, it should be seen as positive that none of the insurance companies surveyed has used the securities received as collateral to conduct further transactions.

Nevertheless, one inherent risk of this still relatively young market segment is its low transparency, which also makes it susceptible to sudden negative events (headline risk). Improved data availability, for instance through disclosure and reporting obligations, may help to better identify potential systemic risk.

Insurers shored up by stable premium income and adequate capital buffers

Although the insurance companies are coming under pressure as a result of shrinking investment income and therefore have an incentive to search for yield, the German insurance sector as a whole can be regarded as robust. A satisfactory premium income performance and adequate solvency ratios are helping the industry to cushion the impact of the low-interest rate environment. In 2011, German primary insurers were able to keep their premium revenue at an almost stable level (just over €178 billion). The most noticeable development among the individual insurance segments was the fall of just over 17% to €21.8 billion in life insurers' single premium contracts. However, single premiums remain an important component, accounting for one-eighth of the total premium amount for new business written in life insurance in 2011.¹⁸

German life insurers, which occupy a key position in the German primary insurance sector owing to their high premium and investment figures, generated just over €83 billion in premium income in 2011, which was just under 5% down on the 2010 result.¹⁹ The annual premium equivalent – a measure of new life insurance business which combines regular premiums and single premiums – remained unchanged year on year in 2011 at €8.3 billion.²⁰ The business trend for reinsurance companies has also been relatively consistent of late.

¹⁸ See GDV (2012), Tables 1 and 27.

¹⁹ Excluding pension funds and Pensionskassen. In 2011, German life insurers generated 46.7% of the premium revenue of all German primary insurance companies. They held 69.4% of total capital investments.

²⁰ The annual premium equivalent or APE is an international standard metric for capturing new business activity. It is calculated as the sum of annualised regular premiums from new business plus 10% of the single premiums on new business written during the year.

German insurers' overall resilience has been found to be adequate. In 2012, BaFin conducted a stress test with a cut-off date of end-2011 in order to examine

German insurers' overall resilience has been found to be adequate.

the impact of a slump on the stock market, bond market and real estate market.²¹ All life insurers and health insurers passed the test once again, while fewer non-life insurers and Pensionskassen than in the previous year failed to meet the minimum capital requirements. Insurance supervisors have introduced measures to improve resilience at all the companies which failed the stress test.

There has recently been a decline in the overall volume of claims held by German insurance companies vis-à-vis euro-area countries that have come under pressure in the financial markets. The insurers' financial strength suggests that potential losses from such exposures – excluding extreme scenarios – would be manageable.

Increasing pressure on margins and business models

The longer the period of low interest rates lasts, the greater the possibility that it will not only have a temporary impact, such as an excessive search for yield and particular burdens for conservative investors, but will also trigger structural changes in the financial system.

For money market funds, the persistently low interest rates raise questions about the sustainability of their business model. After accounting for fees, the yields achievable on most funds are so low that more and more liquidity is being withdrawn from them. The investment activity of German money market funds has thus decreased from approxi-

mately €33 billion before the financial crisis to only around €5.4 billion in September 2012. It remains to be seen whether the liquidity flowing out of money market funds around the world also contributes to the search for yield. There is, moreover, a danger that it will no longer be possible to sell financial instruments such as commercial paper and the money market will thus dry up further. This could place an additional strain on banks' earnings, if they have to replace money market paper with higher-interest-bearing deposit business.

However, for the banking sector, there is also a broader danger of the zero interest rate limit for the remuneration of deposits being reached. Combined with a further possible flattening of the yield curve in the low-interest rate environment, this could place additional pressure on margins.²² Furthermore, empirical studies on the German banking sector suggest that there is a positive correlation between interest rate volatility and credit institutions' net interest margins.²³ Given that interest rate fluctuations are typically relatively minor in a low-interest rate environment, this could also adversely affect institutions' profitability.

Banks' earnings are ultimately also impacted by the existence of and the conditions for alternative financing options available to borrowers. Since the outbreak of the financial crisis and the start of the current phase of low interest rates, it can be seen that non-financial corporations with a high rating have in some cases recorded significantly lower refinancing costs on the capital markets than banks. This shift in the relative financing conditions associated with the search for yield creates incentives

²¹ Four different scenarios were examined: an equities-only scenario, a mixed bonds/equities scenario, a mixed property/equities scenario and a bonds-only scenario. See BaFin (2012c), p 5.

²² Moreover, the high level of competition for deposits could place a strain on banks' margins. See the chapter entitled "The German banking system five years into the financial crisis" on pp 31–40.

²³ See O Entrop et al (2012).

for enterprises to make greater use of bond markets as a source of financing (disintermediation).²⁴ The indications of increasing disintermediation on the corporate credit markets have been substantiated in 2012. Many enterprises can see the advantages of a broader diversification of their financing and are replacing bank loans with corporate bonds, promissory note loans and other non-capital-market-based forms of financing, potentially on a long-term basis.²⁵

Since the outbreak of the financial crisis in 2007, the refinancing costs of euro-area banks, roughly approximated using credit default swaps (CDS) with a five-year maturity, have on average been higher than those of non-financial corporations in the upper investment grade segment (credit ratings AA and A). Since the beginning of 2009, they have even been higher than the refinancing costs of BBB-rated enterprises. Chart 4.5 illustrates this finding for banks and enterprises of selected euro-area countries that have been less hard hit by the sovereign debt crisis.²⁶

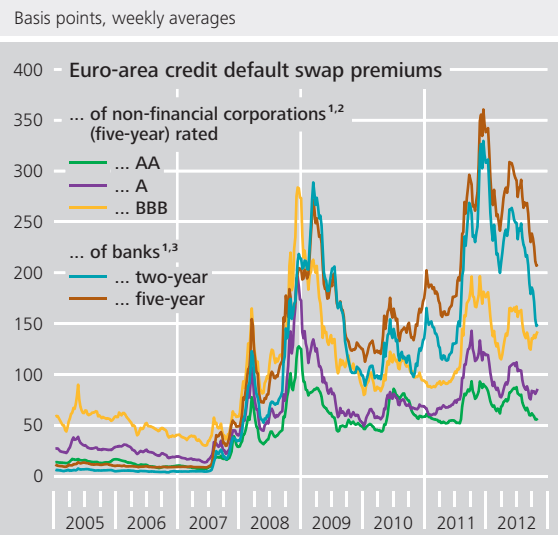
The reversal of the natural credit order remains the same even if a certain degree of maturity transformation in the financial sector is taken into account. At the shorter end of the yield curve, banks' refinancing costs – approximated here using CDS with a two-year maturity – are also higher than the refi-

²⁴ In addition to the low financing costs on the bond markets, the fact that equity risk premiums are currently high in historical terms also makes debt financing more attractive than increasing equity capital.

²⁵ See Deutsche Bundesbank (2012).

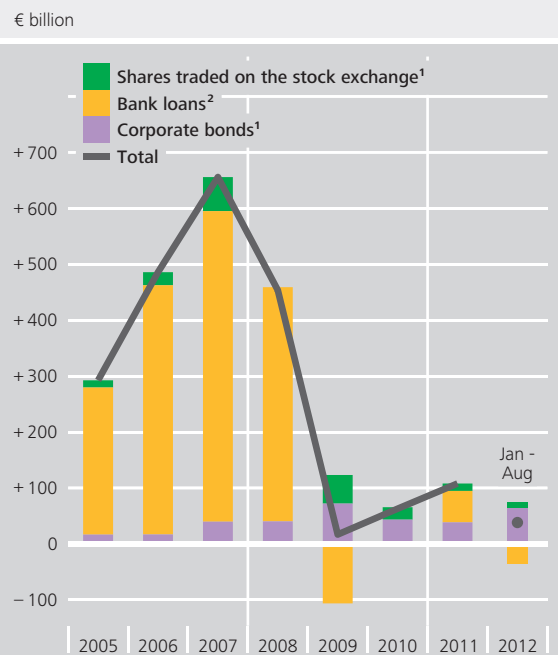
²⁶ Those countries that have been particularly affected by the sovereign debt crisis were not included in the selection, in order to curb the influence of sovereign risk on the results. Otherwise, given the particular tensions in these countries' banking sectors and, in some cases, the decoupling of the corporate sectors, the effect would be even stronger. However, it is likely that the CDS used here, mainly due to their maturity match, somewhat overstate banks' actual financing costs at the current end. The difference between CDS and (maturity-adjusted) yield spreads on bank bonds – referred to as the basis – has been very high on average since the second quarter of 2012.

Incentives for capital market financing in the corporate sector Chart 4.5



Sources: Markit and Bundesbank calculations. **1** Banks and non-financial corporations in Germany, France, the Netherlands, Belgium and Austria are taken into account. **2** Enterprises included in iTraxx Non Financials. **3** The constructed bank indices only contain banks whose lending activities account for at least 40% of their total assets. The indices should thus mainly comprise banks for whom traditional lending business represents a significant share of their activities.
Deutsche Bundesbank

Financing structure of non-financial corporations in the euro area Chart 4.6



Source: ECB. **1** Net issuance. **2** Net lending.
Deutsche Bundesbank

financing costs of enterprises in all rating grades, measured on the basis of five-year CDS.

Greater diversification of corporate financing in the euro area should *per se* be welcomed, as it means that enterprises active in the capital markets are less subject to tensions in the banking sector. However, stress phases in the banking sector and in the markets often occur at the same time. Even though, as in 2009 and 2010, for 2012 as a whole the (net) volume of refinancing via the capital market in the euro area is likely to exceed (net) new lending by banks (see Chart 4.6), this form of debt financing is still not very widespread in the euro area, despite its revival since the financial crisis. Thus, total capital-market-oriented corporate financing recently amounted to around just 10% of overall debt financing, whereas the corresponding figure for the United States was 70%. Moreover, although alternatives, such as the promissory note segment, are gaining in importance, SMEs are likely to continue to depend on credit institutions for the bulk of their financing.

Furthermore, if confidence in the banks is restored in the medium term, owing, for example, to their improved capital adequacy and a decline in the burdens stemming from the sovereign debt problems in the euro area, then part of the expansion in capital market activity could prove to be cyclical. The natural credit order, where risk premiums for banks are lower than those for enterprises, could then be re-established, provided there is a simultaneous reversal of rating trends in the banking sector.

There are nevertheless indications that the financial crisis displays elements of a structural break, as a result of which banks' lending business with sound non-financial corporations could come under pressure. In this regard, it is not clear to what extent credit institutions are proving able to compensate for a possible loss of earnings by increasing their capital market business, for example by boosting

underwriting fees in fixed-income business. This potentially raises the question of the need to adjust their business model, in which case there would be a risk of individual banks offering cut-throat conditions for their lending to enterprises in order to safeguard business relationships, or granting more and more loans to enterprises with a lower credit rating. Furthermore, evasive action could lead to concentration risks in other lines of business, such as private real estate financing (see the following chapter entitled "German housing market gaining momentum").

Banks' lending business with sound non-financial corporations could come under pressure.

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German housing market gaining momentum

Prices on the German housing market have been rising since 2009 after stagnating during the preceding decade. Property prices in Germany's urban centres are growing at an accelerated pace. This renewed momentum in the German housing market was triggered, on the one hand, by a favourable medium-term outlook for income and jobs coupled with low interest rates and, on the other, by uncertainty on the financial markets and a related flight to safe assets, which investments in real estate property are perceived to be. At the moment, the risk of price exaggerations is still low for Germany as a whole, but these cannot be ruled out in individual regional market segments. Mortgage lending in Germany is picking up again following the slump in 2007-08, although growth rates are still moderate. There is currently no negative feedback between price and lending levels which could pose a risk to financial stability. The demand for credit is expected to rise further, however. At present, households' robust debt sustainability and the cautious lending standards in Germany are limiting the potential risk stemming from rising house prices. Further developments on the German housing market are being carefully monitored. The experiences of other countries show that such a combination of low interest rates and high liquidity can lead to price exaggerations on real estate markets that may pose a considerable danger to financial stability. Should the need arise, policymakers could deploy both microprudential and macroprudential instruments in order to counter any dangers to the stability of the German financial system.

Accelerated growth in housing prices in urban centres

The German property market is something of an exception when compared with markets in other countries. Prices in Germany stagnated between 1999 and 2008, whereas they rose considerably in most other parts of Europe. In the current phase, with price corrections taking place elsewhere, prices in Germany are on the increase (see Chart 5.1).

The regional pattern of housing prices is very disparate, however.¹ Housing prices in Germany's urban centres, for example, are seeing accelerated growth. In 125 German towns and cities, prices rose by 6.3% for newly constructed housing and by 4.9% for resale property in 2011 (see Chart 5.2),² compared with 3.5% and 2.0% respectively in 2010. In the seven largest German cities, prices of new residential property climbed

The regional pattern of housing prices is very disparate.

by as much as 9.1% in 2011, compared with 4.9% in 2010. At the same time, prices for pre-owned property went up by 7.0% in 2011, after rising by 3.4% in the preceding year. By contrast, prices for residential property in many rural areas stagnated or even declined in some cases. In 2011, the growth rate for Germany as a whole stood at 2.7%. Prices for commercial real estate have also shown a moderate increase of late (see the box entitled "German commercial real estate market" on pages 58 and 59).

The upward trend in residential property prices appears to have continued in the first half of 2012, especially in Germany's seven largest cities.³

Unsound developments on the real estate markets can jeopardise financial stability

A decoupling of real estate prices from their fundamentals can increase the risk of banks becoming distressed.⁴ The major potential impact on credit institutions arises not least from the level of outstanding housing debt: in mid-2012, housing loans to German households amounted to around €981 billion. These loans make up by far the largest share of household debt (over two-thirds) and also account for a large share (40%) of German credit institutions' total domestic lending. Among savings banks and credit cooperatives, the share of housing loans granted to households is as high as around 50%.

The decisive criterion for financial stability is the proportion of real estate investment that is debt-financed. As long as households are able to withstand any losses in value, this does not pose a threat to the financial system *per se*. Price rises are particularly problematic from a financial stability perspective when they are accompanied by strong credit growth.⁵ The expansion of credit and debt could therefore serve as an indication of price exaggerations. A particular concern is the possible emergence of a self-reinforcing process in which price

¹ Property price developments in many countries are characterised by regional heterogeneity. For the USA, see E L Glaeser, J D Gottlieb and K Tobio (2012).

² Bundesbank calculations based on data provided by BulwienGesa AG. It should be noted that data relating to property price developments are subject to greater uncertainty than other price indices owing to recording problems, limited representativeness and statistical difficulties in measuring the influence of differing quality on prices.

³ Sources: Association of German Pfandbriefbanks (Verband deutscher Pfandbriefbanken), Hypoport AG and Bundesbank calculations based on data provided by BulwienGesa AG. Sub-year data on price developments in the property markets are generally subject to stronger price fluctuations and thus to a high degree of uncertainty.

⁴ See M Koetter and T Poghosyan (2010). The impact of price exaggerations on credit institutions' solvency can be similarly strong to that of reduced cost-efficiency or liquidity problems.

⁵ See J Geanakoplos et al (2012) as well as M Schularick and A Taylor (2012).

increases and growing debt levels mutually amplify one another. For example, the anticipation of rising

Price rises are particularly problematic from a financial stability perspective when they are accompanied by strong credit growth.

prices can increase the willingness to borrow. Over-optimistic expectations of future price developments played a substantial role in the price bubble on the US housing market.⁶ It appears that

property buyers tend to assume that price developments in recent years will carry forward, with the result that their purchasing decisions amplify an upward trend.⁷ This can trigger a self-reinforcing mechanism and can thus have a potentially destabilising impact. In the event of price corrections on the housing market, a high level of household debt has historically tended to lead to higher write-downs in banks' loan portfolios and often results in a period of persistently slow economic growth.⁸

Special factors at work

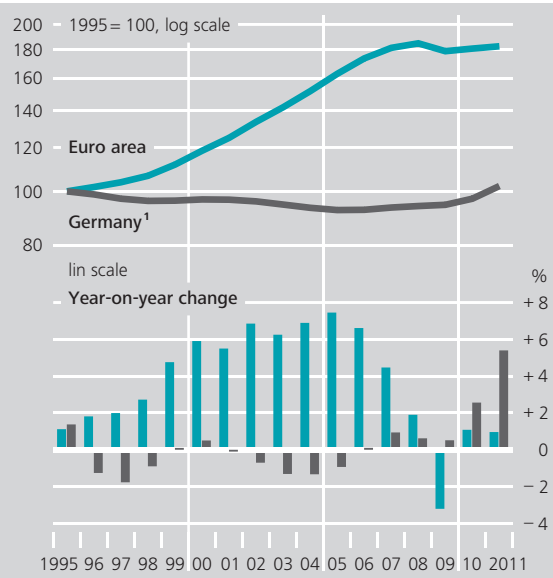
When assessing the current price rises, a distinction has to be drawn between developments across Germany as a whole and developments in individual market segments. While a moderate rise in prices may well be consistent with the fundamental values, price developments in urban centres are also influenced by special factors.

Price rises partly supported by fundamentals

Fundamental factors could warrant a moderate rise in property prices for Germany as a whole.

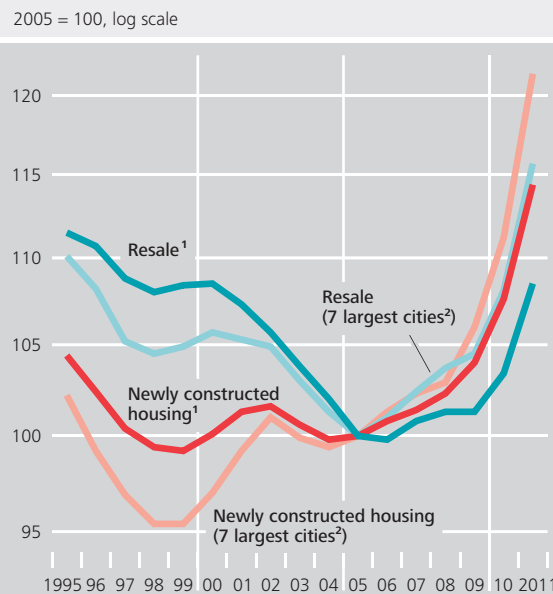
⁶ See C L Foote, K S Gerardi and P S Willen (2012).
⁷ See K Case, R Shiller and A Thompson (2012).
⁸ See T Helbling and M Terrones (2003), C Cecchetti (2006) and International Monetary Fund (2004).

Prices of residential property in Germany and the euro area Chart 5.1



Sources: ECB and Bundesbank calculations for terraced houses and freehold apartments based on data provided by BulwienGesa AG. ¹ Residential property prices in 125 towns and cities. Deutsche Bundesbank

Prices of residential property in Germany Chart 5.2



Sources: Bundesbank calculations for terraced houses and freehold apartments based on data provided by BulwienGesa AG. ¹ Residential property prices in 125 towns and cities. ² Berlin, Cologne, Düsseldorf, Frankfurt am Main, Hamburg, Munich and Stuttgart. Deutsche Bundesbank

German commercial real estate market

Commercial real estate has several salient features that distinguish it from residential property. Its demand is more closely linked to macroeconomic developments and is subject to sharper fluctuations.¹ As a rule, commercial real estate is considered to be a riskier investment than residential property.² Furthermore, foreign investors are more active in the commercial real estate market. Their objective is to build up regionally diversified portfolios. So far, commercial real estate prices in Germany have developed divergently from prices in other European countries. German real estate therefore offers international investors attractive opportunities for diversification. Foreign investors have stepped up their activity in the German commercial real estate market, especially in the past two years.³

Despite the current favourable economic environment, growth in demand is rather sluggish at present. Current vacancy rates for German office buildings remain high, with rents increasing only slightly (see chart on page 59). After a protracted phase of stagnation between 2007 and 2010, prices of office space in Germany's urban centres went up by 5.4% between 2010 and 2011.⁴ At the same time, the number of building permits granted and office buildings completed rose again for the first time in three years.⁵ In this context, market experts estimate that there is still an excess supply of commercial property overall,⁶ although the detailed picture behind this general observation is very mixed. The cost of renting retail outlets is substantially higher in prime city locations than in peripheral areas, for example.

The volatility and heterogeneity of the commercial real estate markets may pose a risk to financial institutions acting as lenders in this market segment. According to the Bundesbank's borrowers' statistics, the outstanding volume of commercial real estate loans issued in Germany by German banks stood at just under €178 billion

at the end of 2011.⁷ These loans account for around 7% of the overall lending volume, which is significantly smaller than the share taken up by housing loans.⁸ In the first quarter of 2012, mortgage banks and savings banks were the largest commercial real estate lenders, extending credit of around €48 billion and €45 billion respectively. Their shares of the total volume of such loans granted by German banks came to 27% and 25%. The Landesbanken loaned approximately €32 billion. Commercial banks lent funds of around €31 billion for commercial real estate financing.

However, each commercial real estate loan is usually several times larger than a typical housing loan. A bank's

¹ See B Case, W Goetzmann and K Rouwenhorst, *Global Real Estate Markets – Cycles and Fundamentals*, NBER Working Paper No 7566, February 2000, and B H Zhu, *The importance of property markets for monetary policy and financial stability*, *Real estate indicators and financial stability*, Vol 21, pp 9–29, Bank for International Settlements, April 2005.

² See M Cieleback, *Development of Residential Property*, in *Understanding German Real Estate Markets*, ed: T Just and W Maenning, Springer, 2012, pp 236–237. Measured by standard deviation, commercial real estate prices in Germany were more volatile than residential property prices between 1991 and 2011.

³ See Jones Lang LaSalle, *Investment Market Overview*, *Capital Markets Newsletter*, H1 2012.

⁴ According to the German Property Index produced by BulwienGesa AG for office buildings in 125 German towns and cities.

⁵ See Federal Statistical Office, *Baugenehmigungen, Baufertigstellungen – Long series 2011*, August 2012.

⁶ Expert survey on commercial real estate conducted by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (Bundesinstitut für Bau-, Stadt- und Raumforschung).

⁷ This includes loans for the purchase, leasing or renting of commercial real estate and non-residential buildings to companies in the "real estate, renting and business services" sector according to the 2008 classification of economic sectors and loans to closed-end mutual funds where the fund's assets consist mainly of commercial properties. Loans for construction services are not included.

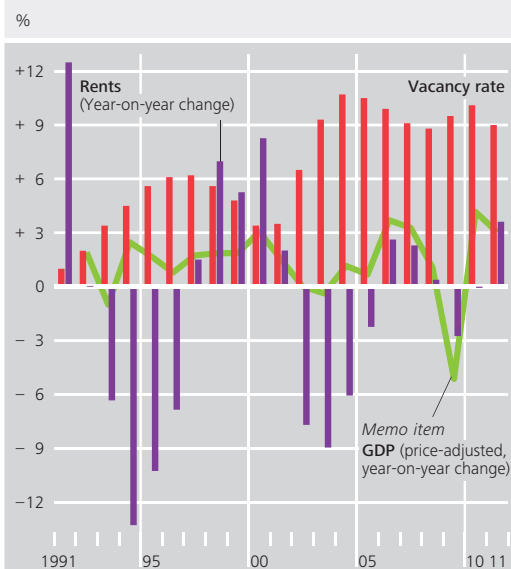
⁸ Loans to domestic borrowers account for around half of the overall volume of German banks' commercial real estate lending. The rest is taken up by commercial real estate loans abroad, which notably form a significant part of the business of major banks with an international focus.

exposure to individual borrowers is therefore considerably higher. The loan conditions are also usually different from those for typical housing loans. In particular, commercial real estate is financed through shorter loan agreements which often involve a bullet redemption. This means that the heaviest financial burden is placed on the borrower only when the loan matures. The short duration of the loan contracts means that rollover financing is required, which is associated with refinancing risk.

As in the case of housing loans, the key risk measure for commercial real estate loans is the ratio of the loan to the property's value, or loan-to-value ratio (LTV). Other important measures of risk are the building's rate of return and the borrower's credit rating and key financial data. At the end of 2011, a comparatively conservative average picture emerged for selected major German banks with an international focus.⁹ Almost half the commercial real estate loans granted in Germany have an LTV ratio of no more than 60%. Furthermore, in practice, various supplementary agreements (covenants) are also applied, which borrowers must adhere to for the duration of the real estate loan agreement and which reduce the risk for the banks. The covenants specify, for example, to what extent the cost of repaying principal or paying interest must be covered by the borrower's annual net income stream during the term of the loan.¹⁰ In 2011, there was a slight decrease in the number of breaches of commercial real estate loan covenants of systemically important German banks. The number of covenant breaches in domestic lending business is not expected to rise overall in 2012. However, an increase in risk cannot be ruled out in regions with a shrinking population and weak employment. On the whole, however, German banks' exposure to commercial real estate currently appears to be unproblematic.¹¹

According to a study by the Federal Financial Supervisory Authority (BaFin), in addition to banks, more and more insurers are acting as commercial real estate lenders.¹² The new European regulatory framework for insurance

Vacancy rate and rents for office buildings in German cities*



Sources: BulwienGesa AG, Federal Statistical Office and Bundesbank calculations. * Using weighted average office spaces for Germany's 7 largest cities.
 Deutsche Bundesbank

companies, SolvencyII, is one of the major incentives behind this. German insurance companies' overall credit exposure in the commercial real estate market came to slightly less than €6 billion at the end of 2011, which accounts for just 0.5% of their total investment portfolio. German insurers' overall credit exposure in this market is therefore still low. Systemic risks are considered fairly unlikely. However, there is a certain potential for risk where smaller insurance companies, whose risk management systems may not yet meet the requirements of the new business segment, are involved.

⁹ Results of a special survey carried out by the Bundesbank among systemically relevant banks.

¹⁰ The specific covenant terms depend on the individual case.

¹¹ By contrast, the risk situation regarding German banks' foreign exposures, in particular in southern European countries, should be viewed rather more critically.

¹² See Federal Financial Supervisory Authority, Insurance undertakings: Real estate financing and real economy investments are becoming more attractive, BaFin Journal 05/12, May 2012.

The sustainable development of housing prices in the long term is primarily determined by income developments and demographic factors, especially the population's age structure and the number of households.⁹ Furthermore, macroeconomic momentum, credit supply, interest rate levels and fiscal policy also generally have an impact on both housing demand and supply.

Wages in Germany have increased more strongly in recent years following the weak growth recorded between 1999 and 2007. In 2011, gross wages and salaries per employee rose by 3.3% and thus more sharply than at any time since 1993.¹⁰ Income expectations have also remained high since mid-2010.¹¹

The historically low interest rate level is affecting housing prices via various channels. For one thing, in periods of low interest rates, buyers can borrow more while loan costs remain constant. For another, the current low-interest rate environment and its practical repercussions are impacting as special factors on the German housing market, especially in the urban centres, via frontloading effects and investment considerations.

In the longer term, housing demand in Germany is likely to be dampened by the unfavourable demographics, even though the ageing of the population is currently being countered by a growing number of households. Demographic factors such as immigration and emigration, together with geographically varying economic dynamics, are also fuelling the development of regional price differences.

Investment considerations gaining importance in urban centres

Special factors are playing a major role in the current upward housing price drift in Germany's urban centres.

To a large extent, the rising price trend in German urban centres is demand-driven. It is fair to assume that the low interest rates, and the consequent incentive to bring forward property purchases, has pushed up demand. The lack of attractive investment alternatives is also likely to have played a major role in the pick-up in demand. Investment considerations are having a particularly strong impact on housing price developments in Germany at present. One indication of this is that demand in comparatively liquid and transparent market segments, such as freehold apartments in urban centres, has risen especially sharply.

Many traditional forms of saving and investment are becoming less attractive as a result of the uncertainty on the capital markets and the low level of interest earned on low-risk assets. Foreign investors also seem to be becoming increasingly active on the German residential property market. In addition, the waning confidence in the financial system since the outbreak of the financial crisis has encouraged a shift out of financial assets into real assets. The German real estate market is therefore increasingly attracting investors, especially with a view to safeguarding value by investing in real assets. The flight to safe assets is fuelling the current hike in property prices, especially in Germany's urban centres.

The flight to safe assets is fuelling the current hike in property prices in Germany's urban centres.

The development of rental yields in larger towns and cities can serve as an indication of possible price exaggerations. If the growth in prices exceeds that in rent, rental yields decline and property investment becomes less attractive. Rental yields for apartments

⁹ See European Central Bank (2003).

¹⁰ See Deutsche Bundesbank (2012a), p 49.

¹¹ As measured by the income expectations indicator of the market research institution Gesellschaft für Konsumforschung (GfK); August 2012.

went up between 2005 and 2009 amid stagnating real estate prices and a slight increase in rents (see Chart 5.3).¹² A trend reversal has been apparent since 2010: housing prices have risen faster than rents, with the result that rental yields have diminished. If this trend continues, it is possible that buy-to-let real estate investments will not achieve the desired rate of return.

Another reason why growth in demand in urban centres has triggered significant price reactions is that market supply has declined over the past ten years owing to low housing construction, although the housing supply in Germany is generally comparatively flexible.¹³ This is reflected in the sharp rebound in housing construction over the past two years in response to rising prices.¹⁴ A jump in supply can, however, reduce the demand overhang and thus have a dampening effect on price developments. In inner-city locations, however, construction elasticity is limited, as supply can only be expanded in line with free building sites.

All in all, German housing prices currently appear robust to the danger of dropping below their long-term average. Against the backdrop of the strong

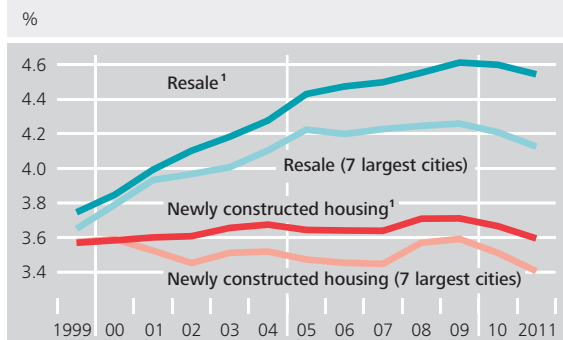
Price exaggerations cannot be ruled out in individual regional markets.

excess demand, price exaggerations cannot be ruled out in individual regional markets, however.

Household debt sustainability robust

Households' debt sustainability and banks' associated credit risks are of pivotal importance for gauging the financial stability of the housing market. These factors also depend on lending standards.

Rental yields for freehold apartments in Germany Chart 5.3



Source: Bundesbank calculations for freehold apartments based on data provided by BulwienGesa AG. ¹ Gross initial yields in 125 towns and cities.

Deutsche Bundesbank

Credit growth still moderate

On the whole, total household debt in relation to disposable income has been on the decline since 2001 and stood at around 95% at the end of 2011.¹⁵ The past few quarters have seen a clear rise in households' demand for housing loans, however.¹⁶ As a result, German banks' portfolio of housing loans likewise grew faster in 2011 than in 2010 (see Chart 5.4).

The upward trend which began in 2009 thus continued. The increase in lending was driven mainly by the regional banks, credit cooperatives and savings banks. Nevertheless, growth in housing loans in Germany remained mod-

Growth in housing loans in Germany remained moderate.

¹² The rental yield is calculated as the quotient of the annual rent per square metre and the price per square metre, adjusted for an add-on of 10% for ancillary purchase costs. The calculations are based on buy-to-let apartments for which new rental contracts were concluded during the reference period. Properties with existing rental contracts were not included in the calculation.

¹³ See German Council of Economic Experts (2006).

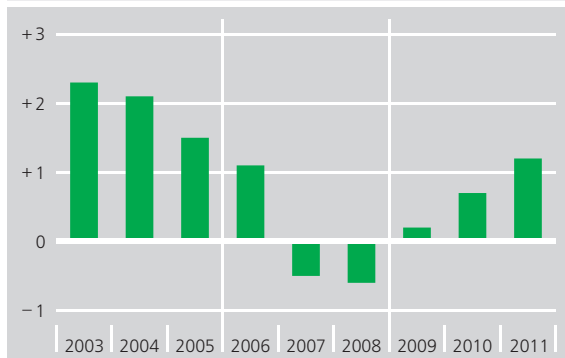
¹⁴ See Deutsche Bundesbank (2012a), p 54.

¹⁵ National accounts figures of the Federal Statistical Office and Bundesbank calculations.

¹⁶ See Deutsche Bundesbank (2012b), p 36.

Domestic housing loans* Chart 5.4

Year-end data; year-on-year percentage change



* Loans to self-employed and employed persons, adjusted for non-transaction-related loan portfolio changes.

Deutsche Bundesbank

erate in 2011, at around 1.2%, which is low compared with credit growth in the 1990s, in particular. It should be noted, though, that the initial phases of price exaggerations may be accompanied by low credit growth.¹⁷

However, the data relating to growth in housing loans for Germany as a whole do not allow any conclusions to be drawn about trends in individual regional markets.

Borrowing demand expected to rise further

Furthermore, banks are anticipating a further rise in household borrowing demand, as shown by the data collected in Germany as part of the Eurosystem's Bank Lending Survey (BLS).¹⁸ According to the institutions surveyed, the outlook for the housing market has been a major driver of growth in credit demand since 2009 (see Chart 5.5). This could indicate that potential buyers are expecting the recent price trend to persist, are driving up demand and borrowing more.

Cautious housing finance limits risks

A number of studies show that cautious housing finance structures make real estate markets less susceptible to price bubbles or at least limit the downstream costs of price corrections.¹⁹

Longer interest rate lock-ins predominant

The terms of housing loans have traditionally been comparatively cautious in Germany. For instance, over 70% of newly issued loans have an interest rate lock-in of more than five years.²⁰ Long lock-ins provide borrowers with more protection against interest rate risks and thus uncertainty about the future debt service burden. This is particularly relevant in the current environment of low interest rates. The ratio of households' interest expenditure to disposable income has been declining for years and has been at a historically low level of just over 3% since 2009.²¹

Nevertheless, the results of a special survey carried out by the Deutsche Bundesbank's Regional Office in Bavaria, which focused on the urban centres of Munich, Nuremberg and Regensburg, show that the share of variable-rate housing loans in a number of urban centres rose slightly between 2009 and 2011. This development harbours risks for borrowers if they are confronted with increasing debt service burdens in the event of an unexpected rise in interest rates. Even interest rate lock-ins only offer

¹⁷ See L Agnello and L Schuknecht (2009).

¹⁸ The aggregate survey results for Germany can be found at http://www.bundesbank.de/Redaktion/EN/Standardartikel/Core_business_areas/Monetary_policy/volkswirtschaft_bank_lending_survey.html.

¹⁹ See J C Dagher and N Fu (2011), European Central Bank (2009), J Dokko et al (2011), C Mayer, K Pence and S M Sherlund (2009) as well as J Duca, J Muellbauer and A Murphy (2010).

²⁰ As at June 2012.

²¹ As at 10 September 2012.

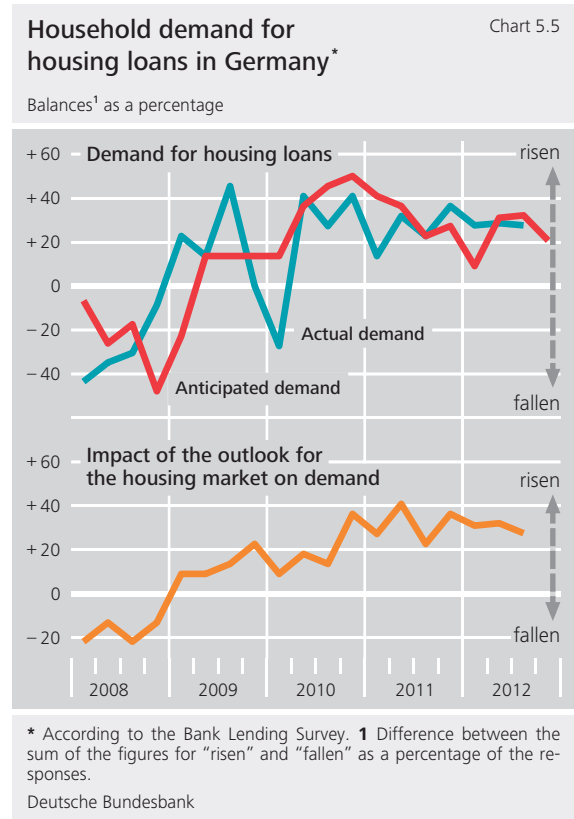
protection against changes in the general interest rate level during the lock-in period. If only a small amount of the principal is redeemed during this period, the costs of the follow-up financing can be significantly higher. Particularly against the backdrop of the current low interest rates, there is a danger that borrowers might underestimate the risks involved in taking out a loan.²²

Given the present exceptional interest rate setting, it would also be advisable for credit institutions, in the light of the current situation, to carefully monitor their refinancing and thus maturity transformation risk.²³

Debt financing limited

In Germany, the share of debt financing in housing purchases is typically lower than in other countries.²⁴ Loans of 100% or more of the mortgage lending value tend to be the exception. This is also connected with the most common form of wholesale funding of mortgages in Germany, the Pfandbrief. Only mortgages up to 60% of the mortgage lending value of a property qualify for the cover pool for German Pfandbriefe.²⁵ Banks have to back any lending commitments above this threshold with extra capital, which makes them dearer to refinance. A smaller share of debt financing increases borrowers' resilience to plummeting prices and reduces the risk of a credit default. At present, households' average debt sustainability remains robust on the whole. This is supported by both the absolute debt burden and the cautious lending standards.

Housing loan portfolios of regional credit institutions, however, show a tendency towards local concentration. Given the risk of excessive price increases in individual regional markets, this can lead to concentration risk, which is not taken into account in regional institutions' capital requirements. Furthermore, persistently rising prices can



lead to lower capital requirements via falling loan-to-value ratios in credit institutions' portfolios. In the aggregate, this could result in a bank's resilience, as measured by the regulatory capital requirements, being overestimated.

Housing loan portfolios of regional credit institutions show a tendency towards local concentration.

²² A survey carried out in the USA shows that, even when they take out standard mortgages, a large number of borrowers do not understand the costs and risks entailed in their loan agreement. See J Lacko and J Pappalardo (2010).

²³ See the chapter entitled "Low interest rates and the search for yield: a challenge for insurers and banks", pp 41–53."

²⁴ See European Central Bank (2009).

²⁵ Pursuant to section 14 of the Pfandbrief Act (Pfandbriefgesetz).

Microprudential and macroprudential instruments available in future

Ongoing developments on the German housing market are being carefully monitored from both a microprudential and a macroprudential perspective. Were the stability of the German financial system to be at risk, policymakers could draw on an array of instruments to nip this danger in the bud. In addition to the various options for increasing capital buffers,²⁶ these could conceivably include direct intervention in banks' credit standards, such as lowering loan-to-value ratios.

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²⁶ See the chapter entitled "Progress in reforming financial market regulation", pp 79–100.

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The shadow banking system: small in Germany, but globally connected

The global shadow banking system has come under increased scrutiny by regulators and the general public since the outbreak of the financial crisis in 2007. Problems relating to activities such as the securitisation of loans and to entities associated with the shadow banking system, such as underregulated financial corporations and money market funds, contributed to the destabilisation of the global financial system. In Germany, links with special-purpose investment vehicles based abroad caused individual banks to sustain massive losses, necessitating government rescue measures. However, the shadow banking system can also perform key economic functions in the financial system: it can serve as an important alternative source of funding for the regular banking system and assume specialised tasks which enhance the efficiency of the financial system.

The identifiable risks in connection with shadow banking entities based in Germany are only minimal at present. In addition, the shadow banking system in Germany is relatively small. This is primarily because of the broad regulatory approach taken in the German Banking Act (Kreditwesengesetz) and other financial market regulations. Moreover, tax regimes and differences in administrative practices are further key reasons why shadow banking entities are more likely to be located in foreign financial centres than in Germany.

By contrast, the risks caused by interlinkages between the German financial sector and the global shadow banking system can be regarded as significant. Risks are created not only by the existence of indirect contagion channels, especially via the financial markets, but also by direct interlinkages, such as through loans and subsidiaries. Problems in the global shadow banking system could therefore also spill over to the German financial system.

German shadow banking system relatively small

In order to promptly identify the build-up of systemic risk and take appropriate countermeasures, all major segments of the financial system need to be supervised. This includes not only lending through regular banking channels but also alternative types of credit intermediation. These, too, harbour risks resulting, in particular, from maturity and liquidity transformation.

In order to ensure that no major risks in the financial system are overlooked, and also in order to cover new forms of credit intermediation, a broad description of the shadow banking system has prevailed internationally. The shadow banking system is thus generally defined as a system of “credit intermediation involving entities and activities outside the regular banking system”.¹ This definition refers not only to entities but also to certain types of credit intermediation in the financial system. What this implies is that even activities involving the regular banking system fall under this definition if they are part of a credit intermediation chain of that particular type.

Open-end mutual funds are Germany’s largest shadow banking entity

Under the broad definition, German shadow banking entities include, in particular, domestic mutual funds (including hedge funds, money market funds and exchange-traded funds (ETFs)) as well as securitisation special-purpose entities (SSPEs).

Mutual funds can constitute part of a credit intermediation chain by investing in debt securities, various forms of credit and bank deposits.² In principle, all types of funds may be considered part of the shadow banking system since funds can invest up to 49% of their assets in financial instruments oth-

er than those which give the respective category of funds its name.³ However, being classified as a shadow banking entity initially only means that this fund comes under the general scrutiny of the supervisory authorities responsible for microprudential and macroprudential oversight in order to obtain an overview of the credit intermediation taking place in the financial system. By contrast, the current debate on regulating the shadow banking system specifically addresses individual categories of funds such as money market funds and ETFs as well as certain types of mutual fund activities.

Open-end mutual funds issued in Germany are by far the largest component of the German shadow banking system (see Chart 6.1). According to figures from the Bundesbank’s monthly investment fund statistics, in September 2012 they had fund assets totalling €1,267 billion, three-quarters of which were held in specialised funds created for institutional investors.⁴

The interlinkages between mutual funds and other market agents are manifold. By providing capital to banks, enterprises and government budgets, they perform a key funding function. Rapid changes in mutual funds’ investment behaviour can therefore affect funding conditions and increase maturity transformation

Rapid changes in mutual funds’ investment behaviour can affect funding conditions and increase maturity transformation risk.

¹ As defined by the Financial Stability Board (FSB). See Financial Stability Board (2011) and J Keller (2012).

² In addition, mutual funds do borrow to a limited extent and can multiply their potential for creating market risk by using derivatives; they are also interconnected with the banking sector through securities lending or repurchase agreements.

³ As provided for by BaFin in Article 2 of its Guideline on specifying fund categories pursuant to section 4 (2) of the German Investment Act (Investmentgesetz) of 30 June 2011.

⁴ Specialised funds – according to the definition, which is still applicable, in section 2 (3) of the Investment Act – are those whose units are, by written agreement with the investment company, held solely by investors which are not natural persons.

risk. Contagion risk could also ensue, especially with regard to specialised funds, if massive losses in value put a strain on institutional investors.⁵

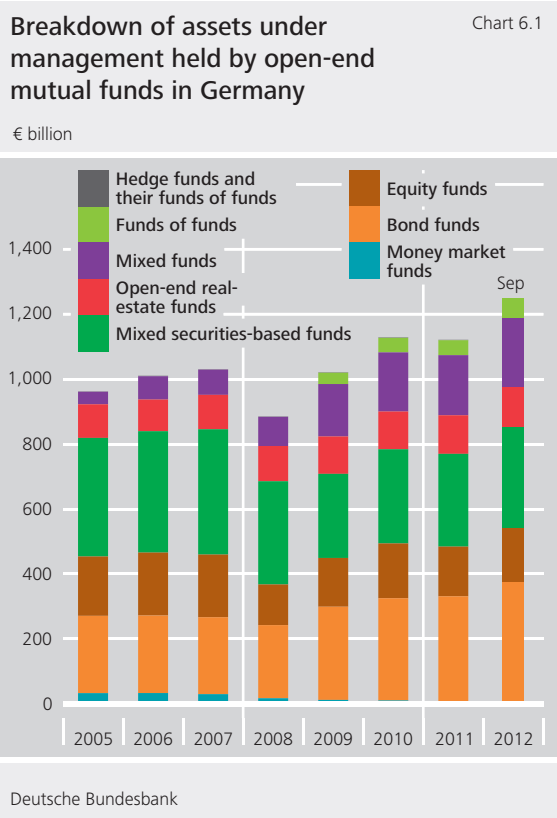
In September 2012, the debt securities issued by domestic credit institutions and held by specialised funds, as banks' counterparties, had a market value of €50.5 billion. Following a continuous decline in previous years,⁶ these asset values have recently remained relatively stable. On the whole, banks' funding through mutual funds has become more short-term, as evidenced by the growing role of bank balances.⁷

Foreign issuers accounted, in September 2012, for 70% (market value of €594 billion) of the securities held by specialised funds (see Table 6.1). Of these, 78% were debt securities and 13% were equities. These funds, and ultimately the holders of the issued fund units, are thus more exposed to problems suffered by foreign financial intermediaries and sovereigns. Risks created by exposures to countries hit particularly hard by the sovereign debt crisis mainly stem from Irish, Italian and Spanish debt securities, though only Spanish instruments show a clear trend towards a pullout.⁸ The amount of fund assets invested in Spanish debt securities in September 2012 was down by 15%⁹ compared with the end of 2011.

Massive outflows from money market funds

Hedge funds and money market funds (MMFs), which are often at the centre of the debate surrounding the shadow banking system, are of only minor importance in Germany. Assets held by hedge funds based in Germany amounted to only around €1.6 billion in September 2012. They

Hedge funds and money market funds are of only minor importance in Germany.



stood at €1 billion at end-2006. Assets under management by MMFs came to a mere €5.4 billion as at September 2012, compared with €33 billion at end-2006. MMFs have seen massive outflows since

⁵ Institutional investors' shares of specialised funds' assets break down as follows: 14% for credit institutions, 36% for insurance corporations, 18% for pension fund institutions, 9% for other financial intermediaries, 2% for social security funds, 5% for non-profit institutions serving households and 0.5% for non-residents. As at September 2012.

⁶ At the end of 2009, the volume of domestic bank debt securities held by specialised funds was still as high as €57.6 billion.

⁷ In September 2012, specialised funds held €47 billion worth of bank deposits at domestic credit institutions, compared with €36 billion in September 2010. Bank deposits' relative percentage share of the total bank deposits and bank debt securities held with or by domestic credit institutions rose from 41% in September 2010 to 48% in September 2012. At the same time, domestic banks have invested €134 billion in domestic specialised funds.

⁸ Portfolios of Greek, Portuguese and Cypriot securities are relatively insignificant.

⁹ Market values; the nominal values in September 2012 were 12% lower than at the end of 2011.

Selected securities from the foreign portfolio of German specialised funds*

Table 6.1

Market values

Country	Public sector debt securities			Other debt securities			Equities		
	December 2011	September 2012		December 2011	September 2012		December 2011	September 2012	
	€ bn	€ bn	Percentage change	€ bn	€ bn	Percentage change	€ bn	€ bn	Percentage change
Total	116.2	129.9	+ 11.8	279.7	335.0	+ 19.8	72.4	77.6	+ 7.1
<i>of which</i>									
France	27.8	30.9	+ 10.9	45.4	57.2	+ 26.0	12.6	12.6	+ 0.0
Ireland	2.1	1.5	- 27.1	11.1	12.3	+ 11.6	0.5	0.6	+ 31.2
Italy	15.2	17.2	+ 13.3	11.5	12.9	+ 12.5	3.1	3.2	+ 3.6
Netherlands	9.3	9.4	+ 0.9	42.3	50.8	+ 20.0	4.8	4.8	- 1.4
Spain	5.4	3.7	- 31.0	23.8	21.1	- 11.7	4.6	3.5	- 23.7
United States	6.3	7.7	+ 22.6	36.1	39.8	+ 10.4	12.7	14.4	+ 13.0
United Kingdom	2.6	2.7	+ 3.2	34.9	39.4	+ 13.0	9.9	10.8	+ 9.3

* As at September 2012, the foreign portfolio of German specialised funds totalled €593.9 billion as compared with €510.4 billion at end-2011. In addition to the securities shown, units in mutual funds are also included in these data. Specialised funds are funds whose units, under a written agreement with the investment company, are held exclusively by investors who are not natural persons.

Deutsche Bundesbank

2007.¹⁰ Concentrated risky portfolios of individual funds as well as, most recently, the sharp drop in interest rates, were key drivers. The turmoil encountered by US MMFs during the financial crisis also contributed to the outflows of funds.

Open-end real estate investment funds with design flaws

Open-end real estate investment funds are not at the centre of the discussion surrounding shadow banking entities. In recent years, however, design flaws have surfaced. There is a maturity mismatch between the possibility of daily redemptions and the funds' long-term, illiquid investments in real estate. This implies a considerable liquidity and maturity transformation, with commensurate risks to investors and associated credit institutions. These flaws should be ameliorated with the longer redemption

periods introduced under the German Investor Protection and Capital Market Functionality Improvement Act (*Anlegerschutz- und Funktionsverbesserungsgesetz*), which will be applicable from 2013.

The market for open-end real estate investment funds in Germany consists of funds open to the general public with assets of around €85 billion and specialised funds with assets of €36 billion (both as at September 2012). Whereas the assets of funds open to the general public fell by a slight 1.5% compared with the end of 2011, those of specialised funds continued to rise significantly, by 9.4%. At present, more than a quarter of the assets of real estate investment

¹⁰ Net outflows since December 2006 total some €23 billion. This effect has been amplified by an amendment in July 2011 to the definition of MMFs, which led to reclassifications of collective investment funds. A large portion of the €2.6 billion decline in assets under management from June 2011 to July 2011 is attributable to these reclassifications.

funds open to the general public are no longer available to investors because of closures.¹¹ Given that the design of the future regulatory regime has not yet been finalised, it is currently impossible to assess how the possible legislation in Germany¹² being debated at the moment will influence the market – whether, for instance, funds for professional investors will, in future, be increasingly issued in other EU countries.¹³ Despite this uncertainty, net sales receipts are still positive.

Credit institutions' lending to real estate investment funds is just one of the ways they are exposed to contagion.¹⁴ The risk-weighted assets (RWA) of

Reputational risk puts pressure on closely associated institutions to put the assets of distressed real estate investment funds on their balance sheets.

systemically important financial institutions (SIFIs) relating to real estate investment funds which have suspended redemptions of units or are in liquidation stood at €2.6 billion in June 2012.¹⁵

Despite the absence of identifiable systemic risks at present, losses can put a strain on individual institutions. Reputational risk must not be underestimated, either. It puts pressure on closely associated institutions to put the assets of distressed real estate investment funds on their balance sheets.

Exchange-traded funds are growing

Additional entities considered to be part of the shadow banking system in Germany include securitisation special-purpose entities (SSPEs) and exchange-traded funds (ETFs). These entities' assets under management have been moving in opposite directions. Assets under management by SSPEs domiciled in Germany fell by just over 8% between June 2011 and June 2012 to €58.4 billion. Assets managed by domestic ETFs¹⁶ amounted to €33 billion as at September 2012 (of which only €0.5

billion were synthetic¹⁷). They were up by just over 12% compared with September 2011, thus keeping pace with the total assets of domestic securities-based funds.

German shadow banking system relatively small

The net assets of the statistically recorded shadow banking entities in Germany totalled around €1.3 trillion in September 2012. This figure is only a rough approximation, however.¹⁸ It represents around 15% of the total assets of the regular banking system in Germany (as defined in the monthly balance sheet statistics, around €8.6 trillion in September 2012). It is difficult to compare the size of the German shadow

The net assets of shadow banking entities in Germany represent around 15% of the total assets of the regular banking system.

¹¹ Owing to persistently high repayment claims, at present five real estate investment funds have suspended redemptions of fund units and 12 real estate investment funds are being liquidated. Source: German Fund Association of Investment and Asset Management (BVI); as at August 2012.

¹² On 20 July 2012, the Federal Ministry of Finance presented for discussion a draft Act Implementing the Alternative Investment Fund Managers (AIFM) Directive. This draft envisages real estate investment funds no longer being issued as open-end but only as closed-end funds in future. Pre-existing open-end real estate investment funds would be grandfathered.

¹³ Owing to an "EU passport", these products could then be sold to professional investors in Germany.

¹⁴ Loans taken up must not exceed 30% of the market value of real estate contained in the fund.

¹⁵ The affected real estate investment funds are largely exposed to commercial real estate, mostly office buildings. For most of these funds, the investment properties are located mainly in Germany and Europe. Source: information provided by firms in the industry.

¹⁶ ETFs are classified in Germany as equity funds or bond funds and thus contained in the figures on mutual funds.

¹⁷ In the case of synthetic ETFs, instead of direct purchases of the components of the index to be modelled, swaps which replicate the movement of the index's value are conducted. See Deutsche Bundesbank (2011), p 31.

¹⁸ The statistical sources used here were not designed to capture the shadow banking system, which makes an overall assessment more difficult. In addition, differences in the frequency of surveys make it impossible to aggregate the figures for the exact same cut-off dates.

banking system with that of foreign shadow banking systems since different definitions and methods of identification are used.¹⁹ The Federal Reserve Bank of New York²⁰ uses, for instance, the liabilities from flow of funds data to estimate the size of the US shadow banking system. It arrives at US\$15 trillion,²¹ equivalent to around 110% of the liabilities of the regular US banking sector. Despite the use of different calculation methods, these figures suggest that Germany's shadow banking system is small by global standards.

Shadow banking activities in Germany: broad identification and monitoring desirable

Not only entities but also certain activities in the financial markets can be classified as shadow banking. From a systemic risk perspective, repurchase agreements (repos), securities lending, collateral re-use and securitisations may all be regarded as important.

Repos and securities lending transactions are important financial market activities and potentially form part of the shadow banking system.²² As with shadow banking entities, it is desirable to capture these activities as broadly as possible.

One of the key elements of these markets is their contribution to procyclicality.²³ In addition, the design of shadow banking entities' business models can also give rise to risk. If these models are based on short-term repo-based funding, this can lead to massive liquidity problems in times of market stress.²⁴

Repos and securities lending transactions significant

The Bundesbank collects, as part of its monthly balance sheet statistics, data on repos, reverse repos and securities lending transactions of banks domi-

ciled in Germany.²⁵ The bulk of both asset-side and liability-side domestic transactions are conducted between banks or between banks and central counterparties (CCPs) (see Chart 6.2). They are generally not regarded as belonging to the shadow banking system.²⁶ This is consistent with the assessment regarding the small size of Germany-based shadow banking entities, which thus play only a minor role as counterparties. Among foreign counterparties, however, the percentage of enterprises and individuals (including a wide range of shadow banking entities) is much larger. Moreover, it is impossible to fully rule out the possibility that a certain percentage of foreign banks acting as counterparties are actually MMFs. The available data, however, are not granular enough to reach any substantive conclusions.²⁷

In August 2012, domestic banks reported outstanding repo and securities lending transactions amounting to €400 billion on the liability side and €439 billion on the asset side. Since 2010, asset-side and

¹⁹ K Bakk-Simon et al use the group of other financial intermediaries (excluding collective investment funds, including money market funds) to approximate the shadow banking system in the euro area and estimate a figure of €10.8 trillion for the second quarter of 2011. Collective investment funds would add another €5.6 trillion to the total. See K Bakk-Simon et al (2012).

²⁰ See Z Poszar et al (2012).

²¹ As at the third quarter of 2011.

²² If a transaction is conducted between two shadow banking entities, this is regarded as a pure shadow banking activity. However, a transaction between a bank and a shadow banking entity can also be classified as a shadow banking activity. Transactions conducted directly between financial institutions from the regular banking sector are generally not classified as being part of the shadow banking system.

²³ See eg Committee on the Global Financial System (2010) and Financial Stability Board (2012).

²⁴ The collapse of the investment bank Lehman Brothers is a case in point to illustrate the risk from the regular banking sector.

²⁵ A reverse repo is a repo transaction seen from the perspective of the party buying the security. No distinction is made, however, between repos and securities lending (or between reverse repos and securities lending). Securities lending transactions with non-cash collateral are not recorded.

²⁶ CCPs are generally not classified as being part of the shadow banking system. Nonetheless, they can play an important role in credit intermediation and should not be omitted from general financial system oversight.

²⁷ Within the euro area, money market funds are assigned to the category of banks. Outside the euro area, they may be classified as banks or as non-banks.



liability-side market activity have both been declining slightly. This is consistent with developments in the European repo market, which contracted from €6.89 trillion in June 2010 to €5.65 trillion in June 2012.²⁸ Comparability between the German and European markets is limited as no reliable figures on the size of the European securities lending market are available.

Data on the original maturities of the outstanding transactions are available for German banks. As at August 2012, 25.6% of outstanding liability-side transactions were one-day transactions, 71.6% had a time-to-maturity or notice of up to one year, and all other transactions were either longer-dated or not assigned to any category. On the asset side, 96.8% of outstanding transactions had a time-to-maturity or notice of up to one year. These percentages have remained relatively constant since authorities began collecting these figures in June 2010.

According to data from Germany's Federal Financial Supervisory Authority (BaFin), as at March 2012 funds open to the general public lent securities amounting to €19.4 billion (roughly 6% of assets under management) and were involved in around €0.2 billion worth of repo transactions as either transferors or transferees. However, no data are available for specialised funds, which make up most of the overall market for funds.

Collateral is re-used

Securities repo and lending transactions often involve a potential re-use of the underlying collateral.²⁹ For the lifetime of the transaction, the

²⁸ See International Capital Market Association (2012).

²⁹ Entities from the regular banking sector are frequently involved. However, this activity forms part of credit intermediation chains which also contain shadow banking entities.

ownership rights go to the protection buyer. Forms of collateral re-use include the re-investment of cash collateral or re-use in order to secure wholesale funding operations. The same security pledged as collateral can therefore be used to collateralise multiple transactions.

Excessive collateral re-use can create massive problems for the affected institution and cause contagion.

Collateral re-use can lead to increased maturity transformation. It also amplifies the number of interconnections in the financial system. As is

shown by the example of the US insurer AIG, excessive collateral re-use can create massive problems for the affected institution and cause contagion.³⁰

Indications of its importance in Germany can be derived from annual reports, in which some banks give aggregated figures on collateral re-use. The evaluation of the relevant data for four large institutions with an international focus³¹ shows that, as at the end of 2011, these institutions had obtained €431 billion in collateral (end-2008: €316 billion) which could be either re-sold or re-pledged. A total of €309 billion of this was re-used (end-2008: €254 billion). This absolute increase in re-use since 2008 is attributable primarily to the growing role being played by secured funding; the relative share has actually decreased.³²

Nonetheless, the picture is still incomplete. The information on the sources and exact use of collateral is still inadequate. Various initiatives by the Financial Stability Board (FSB) and the European Systemic Risk Board (ESRB) are intended to redress this state of affairs. Their goal is to gain comprehensive insights into the re-use of collateral so that, in future, any resultant risks can be flagged up early on.

Securitisation market collapsed

Securitisations – one of the triggers of the financial crisis in 2007 – are another important shadow banking activity. Data on securitisations where the underlying is German³³ show that, in October 2012, US\$226 billion in securitisations were still outstanding on the market; 66% were non-real estate asset-backed securities (ABS), 23% commercial mortgage-backed securities (CMBS) and 11% residential mortgage-backed securities (RMBS). Activity in this market segment has fallen off sharply since the beginning of the financial crisis. This is also shown by the declining number of new issues, a large percentage of which, moreover, have been retained (see Chart 6.3).

Risks emanate from the foreign shadow banking system

The German financial system is highly interconnected with the global shadow banking system, which means that problems in the global shadow banking sector can also affect financial stability in Germany. There are direct interlinkages through assets and liabilities stemming from business relationships (eg repos or securitisations) and, less visibly, through implicit guarantees and liquidity lines (for enterpris-

³⁰ See S E Harrington (2009) and Financial Stability Board (2012).

³¹ Deutsche Bank, Commerzbank, BayernLB and LBBW.

³² BaFin surveys have yielded additional information on open-end funds open to the general public and insurers. Open-end funds open to the general public, however, do not re-use collateral (as at March 2012). Reasons include the ban on re-use of non-cash collateral for funds and, in the case of cash collateral, the restriction of re-investment to money-market-like investments, the returns on which currently offer no incentive whatsoever for re-investment. The surveyed insurers likewise did not, as at June 2012, re-use collateral (see also the chapter entitled "Low interest rates and the search for yield: a challenge for insurers and banks", on pp 41–53).

³³ Source: Dealogic. Around 50% of the securitisations with a German underlying can be assigned to German issuers if the chosen distinction is based on the nationality of the parent.

es' own investment vehicles domiciled abroad). In addition, indirect interlinkages can be forged via the international financial markets if the investment behaviour of shadow banking entities changes rapidly worldwide.

Business ties with foreign OFI sector on the decline

The German banking sector's claims and liabilities vis-à-vis the foreign shadow banking system can be approximated from the balance sheet items vis-à-vis foreign "other financial institutions" (OFIs).³⁴ In September 2012, domestic credit institutions had liabilities of €138 billion to the foreign OFI sector. Loans and bonds amounted to €237 billion, €115 billion of which were bonds issued by foreign OFIs. Owing to the outbreak of the financial crisis and the consequences for large swathes of the shadow banking system,³⁵ business ties with the foreign OFI sector have diminished notably since 2007 (see Chart 6.4). On the asset side, since the all-time high of €375 billion in loans and bonds in May 2008, there has been a clear decline. Not only has there been a reduction in the extent of activity with the shadow banking sector, but the local focus of activity has also shifted in the past few years. During the pre-crisis phase, numerous shadow banking counterparties were based at offshore financial centres such as the Cayman Islands. Since 2007, liabilities to OFIs based in Luxembourg have risen whereas those against Cayman Islands-based shadow banking entities have fallen.

Shadow banking entities provide funding to German banks

Shadow banking entities have, over the past few years, become a significant source of funding for the German banking system, with German banks, for instance, having borrowed a total of US\$55 bil-

The securitisation market in Germany

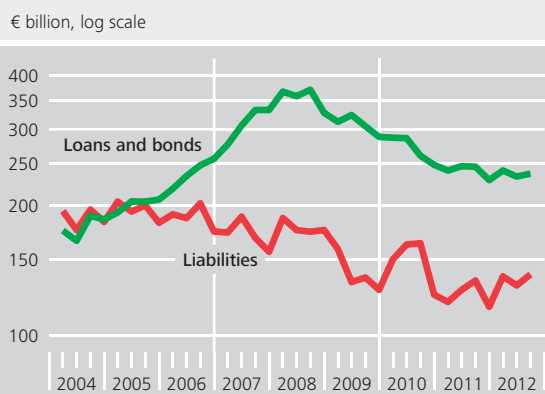
Chart 6.3



Sources: Dealogic and Bundesbank calculations. 1 The remainder were retained by the issuers.
Deutsche Bundesbank

German banks' business relations with other financial institutions abroad

Chart 6.4



Deutsche Bundesbank

³⁴ This category includes not only shadow banking entities such as mutual funds, non-deposit-taking financial corporations and SSPs but also non-shadow banking entities. By contrast, MMFs, which are part of the shadow banking system, are not classified by the European System of Accounts (ESA95) as OFIs but instead as MFIs.

³⁵ For instance, the collapse of large parts of the securitisation market took away the foundation for the business model of numerous special-purpose entities (SPes).

lion from US money market funds as at June 2012; 27% through repo transactions, 63% as unsecured loans with a maturity of more than one week, and the remaining 10% through loans with a maturity of less than one week.³⁶

A renewed run, such as that on US MMFs in 2008, could cause this source of funding to dry up instantly. To reduce the risk of a potential run, a worldwide restriction to funds with variable unit values, such as the one in place in Germany, would be a helpful approach. However, as only a relatively small share of funding is provided by US MMFs, it may be concluded that risk is currently manageable.

Foreign shadow banking entities can also be attributed to German institutions

Counterparty credit risk, however, is not the only type of risk to credit institutions arising from interlinkages with the shadow banking sector. Some German credit institutions operate their own business entities abroad

German credit institutions operate their own business entities abroad which are considered part of the shadow banking system.

which are considered part of the shadow banking system. These include, for instance, special-purpose investment vehicles. For tax and regulatory reasons, these are often established as formally independent entities of subsidiaries located abroad but, in some cases, are given binding guarantees and liquidity lines by their domestic parent enterprises. Experience gained during the financial crisis, however, has shown that parent enterprises not only provided binding support commitments, which often were not consolidated in the balance sheet, but also made payments to avoid reputational damage and/or to contain the fallout from the turmoil. In order to mitigate these risks, the German Act Modernising Accounting Law

(*Bilanzrechtsmodernisierungsgesetz*) now requires SPEs to be consolidated if most of the economic risks and rewards of an enterprise are borne by the parent.

There are also complex relationships between German credit institutions and affiliated entities abroad in connection with ETFs and the like. Thus, the largest ETF subsidiaries located abroad of German credit institutions had around €47 billion in assets under management³⁷ as at mid-2012, a considerable portion of which had been issued as synthetic, swap-based funds. Affiliated group entities are often key counterparties in swaps. When issuing synthetic ETFs, the group can, in some instances, use its investment as a source of funding for less liquid securities from its own portfolio and thus secure terms that are more favourable than those on the market. Even in the case of securities lending transactions from ETFs' assets under management, the counterparty can be in the same group. Moreover, affiliated group units regularly act as liquidity-providing ETF market makers. The group's trading desks can function as an additional link between ETFs and investors through proprietary trading in ETFs – often with a very high frequency. Owing to such multifaceted and complex international group structures and activities, multiple national supervisory authorities are generally responsible for overseeing all the individual specialised entities. This makes it all the more important for the group's responsible supervisor to keep fully abreast of the general risk situation.

Risks through indirect interlinkages via international financial markets

The global shadow banking system can pose a risk to financial stability in Germany not only through

³⁶ Source: Investment Company Institute; data based on 111 prime money market funds; coverage approximately 97%.

³⁷ Source: BlackRock, ETF Industry Association and Bundesbank calculations. See also Deutsche Bundesbank (2011), p 31.

direct links but also via indirect channels of contagion. The impact of hedge funds on market liquidity is a case in point.³⁸ Since hedge funds play a major

Problems in the hedge fund sector can spill over, through market liquidity, to German financial corporations.

role in several market segments, problems in the hedge fund sector can spill over indirectly, through market liquidity, to German financial corporations. According to the latest Hedge Fund Survey

published by the UK Financial Services Authority (FSA), surveyed hedge funds held 7.3% of the outstanding value of the convertible bond market and 6.0% of the outstanding value of the commodity derivatives market, and hence a material share of those markets.³⁹ High trading volumes have been observed particularly in foreign currency, equities and G10 countries' government bonds with a maturity of more than one year, as well as commodity derivatives, though the study cannot establish any correlation with the total volume of trading.⁴⁰

Closing data gaps

It is extremely difficult to assess the entirety of interlinkages with the foreign shadow banking sector. Data on some market segments are either virtually nonexistent or unreliable. However, numerous international initiatives are

The ESRB and FSB can make a major contribution to assessing trends in the global shadow banking system.

in progress with the goal of closing data gaps, improving disclosure standards and harmonising statistical reporting and surveys.

In principle, it can be stated that many areas which are regarded as part of the shadow banking sector are already regulated in Germany. This regulatory regime will be expanded and intensified through the implementation of

forthcoming standards and regulation. In addition, potential risks in the global shadow banking sector need to be analysed in terms of their possible implications for financial stability in Germany. European and global forums such as the ESRB and FSB can make a major contribution to assessing trends in the global shadow banking system.

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³⁸ See G O Aragon and P E Strahan (2012) as well as N M Boyson et al (2010).

³⁹ In fact, this is only the subset of surveyed funds which, as at March 2012, represented some US\$380 billion of assets under management. According to Hedge Fund Research (HFR), in March 2012 hedge funds held a total of around US\$2,130 billion in assets under management.

⁴⁰ According to a 2010 study by Greenwich Associates, hedge funds accounted for 19% of the total volume of trading in US fixed-income securities, down from 29% in 2007. However, they are still an important factor in market sub-segments; for instance, they make up 90% of the trading volume in distressed debt, 64% of trading in structured credit products and 63% of trading in high-yield credit derivatives. See Greenwich Associates (2010).

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Progress in reforming financial market regulation

A fundamental restructuring of the international financial system has been launched over the last few years. In the meantime, many regulatory reform projects have entered or are about to enter the implementation stage. For instance, a new international standard for effective resolution regimes has been adopted which is designed to help combat the too-big-to-fail problem. Under the transposition of Basel III into European law, macroprudential instruments (amongst other things) are to be introduced that will enable the competent authorities to take timely action against the build-up of excessive risk in the financial system. And finally, the adoption of the EU regulation on the over-the-counter (OTC) derivatives market constitutes a significant step towards greater stability and transparency in this market segment. The task now is to gauge the extent to which the shortcomings in the financial system have been remedied and where potential problems lie with regard to the coherence of the new regulatory framework.

The introduction of a split investment/traditional banking system is currently the subject of intense debate, featuring a simplification of group structures that could be beneficial to financial stability. However, a split system of this kind can only partially sever the interconnectedness within the financial sector.

Time for an interim assessment of re-regulation

The financial crisis has clearly revealed the need for an extensive re-regulation of the international financial system. Amongst other things, a system-oriented (macroprudential) dimension needs to be added to the hitherto predominantly institution-specific (microprudential) approach to financial market regulation in order explicitly to take systemic risks into account.

Important progress made

The G20 is playing a major role in shaping the regulation agenda.¹ The regulatory initiatives are concentrated on those areas that pose the greatest risks to the stability of the financial system. In particular, these include the too-big-to-fail problem, which refers to the fact that systemically important financial institutions (SIFIs) have to be rescued by the state in the event of their becoming insolvent. Initial progress has been made in reducing this risk. For example, a new international standard governing the main core elements for effective resolution regimes has been adopted.² In addition, over and above Basel III, capital surcharges are to be introduced for SIFIs with the aim of increasing their loss absorbency capacity and reducing the probability of government rescue measures.

Another area of financial market regulation concerns the procyclicality of the financial system. A number of different macroprudential instruments will be introduced when Basel III is transposed into European law (Capital Requirements Directive IV, CRD IV, and Capital Requirements Regulation, CRR). These instruments are designed to enable the competent authorities to combat, in particular, the cyclical build-up of risks in the financial system. For now, the most important tools are the countercyclical

capital buffer and the variable capital charge for residential and commercial mortgage lending.³

A third area that was of significance to the onset and scale of the crisis is the global OTC derivatives market. Here, too, a major step towards a more stable financial system was taken – albeit with a delay – when the EU regulation on OTC derivatives, central counterparties and trade repositories (European Market Infrastructure Regulation, EMIR) was adopted. In future, OTC transactions between the financial market participants, which in the past were largely unregulated and in some cases unsecured, will for the most part have to be cleared on a secured basis via central counterparties (CCPs) and reported to central trade repositories.

What questions are still outstanding?

Important progress towards greater financial stability has been made both with these reform measures and with a range of other regulatory initiatives which are currently at very varied stages of political debate.

Besides the above-mentioned initiatives on issues regarding the resolution and the capital of banks and the infrastructures for derivatives markets, other important regulatory projects should be highlighted in this context. These include the EU Short Selling Regulation, which has already entered into force, and the regulatory reforms concerning the rating agencies and the Markets in Financial Instruments Directive/Regulation (MiFID/MiFIR), which are currently in legislative process. Given the projects highlighted above and the many others that are currently underway, it is all the more important to consider to what extent the most pressing problems have

¹ See G20 (2009).

² See Financial Stability Board (2011).

³ See also the section “German housing market gaining momentum” on pp 55–65.

already been solved, and where challenges remain. At the same time, there is the question of the coherence of the various regimes. Here, attention needs to be paid to the interaction between different regulatory initiatives so as to prevent undesired side-effects. This calls for an integrated approach to the various regulatory projects.

In this connection, it remains to be seen what effects the introduction of a banking union, which is currently under discussion, will have on the European financial market architecture and on the regulatory framework (see also the box entitled “Banking union: a useful addition for Europe in the medium term” on pages 82 and 83.) A single European supervisory mechanism for financial institutions may well constitute a major first step towards a closer integration of the economic and monetary union. A more centralised banking supervision structure could lead to improved accommodation of cross-border effects and facilitate a uniform implementation of harmonised regulations regardless of national interests. The key is to strike a balance between liability and control. Moreover, a banking union would have to be accompanied by harmonised regulation that severs the close interconnection between governments’ and banks’ balance sheets and heightens the individual banks’ resilience. Key starting points for a medium-term reform would be regulatory steps aimed at reducing risk concentration – also vis-à-vis individual states – by, for example, introducing an appropriate risk weighting.

Another issue that warrants careful examination from a financial stability perspective is the future structure of the banking system. In particular, the debate centres on the introduction of a system of separated banking functions under which the riskier investment banking would be organisationally separated from traditional banking.

Macprudential instruments soon ready for use

Macprudential policy in Germany and Europe is taking shape. Its aim is to preventively correct unsound developments, thereby averting risks to financial stability. This has particular significance in a monetary union, where the member states have diverging economic structures and developments, as they no longer have their own monetary policy instruments with which to counteract specific financial imbalances and/or overheating in specific regions or sectors.

Macprudential policy in Germany and Europe is taking shape.

Retain national flexibility

As the European macro-supervisor, the European Systemic Risk Board (ESRB) has not lost sight of the importance of national flexibility in its fundamental principles of macroprudential policy. Essentially, the national macroprudential authorities need to be granted sufficient leeway and flexibility to allow them to take preventive action and to respond to systemic risks that have already arisen.

The decision on the use and dosage of measures should be the prerogative of the national macroprudential authorities.

The decision on the use and dosage of measures should be the prerogative of the national macroprudential authorities.

This is also in line with the principle of subsidiarity, and does not clash with the concept of a single rule book. Here, too, like cases should be treated alike and unlike cases differently.

Banking union: a useful addition for Europe in the medium term

The European Commission and the European Central Bank (ECB) proposed the creation of a banking union in mid-2012 as a step towards resolving the financial crisis, and safeguarding and strengthening financial stability in Europe.¹ The primary goals are

- to counteract a disintegration of the European financial markets in the current crisis,
- to break linkages between the national governments and their domestic banking sectors,
- to enable monetary policy to pursue its core task of safeguarding price stability again.

Specifically, the term “banking union” refers to the creation of a single European system of banking supervision, a single recovery and resolution framework and a single system of deposit protection.

Against this background, at the EU Summit on 29 June 2012, the euro-area heads of state or government called for the creation of a single supervisory mechanism for banks in the euro area, involving the European Central Bank. Furthermore, it was stressed that once an effective supervisory mechanism has been set up, the European Stability Mechanism (ESM) should be empowered to recapitalise banks directly, subject to appropriate requirements. The European Commission then submitted a draft Regulation on 12 September 2012 to transfer certain banking supervisory functions to the ECB on the basis of Article 127 (6) of the Treaty on the Functioning of the European Union (TFEU). At the same time, the European Commission announced further details of its ideas on how to achieve a comprehensive banking union and proposed amendments to the European Banking Authority (EBA). The heads of state or government affirmed the

creation of a single supervisory mechanism on 19 October 2012.

A banking union can, in principle, help to boost confidence in the European banking sector and to loosen the link between the creditworthiness of sovereigns and banks. It is, however, to be seen as a medium-term strategy for the ongoing development of the European financial architecture and not as a “quick fix” for the current crisis.

Unified supervision can fundamentally be a useful addition to European monetary union. It takes account of the highly integrated European banking sector and can be an important tool in creating a level playing field and in enhancing confidence in euro-area credit institutions. To this end, however, it will be necessary to focus on strengthening single European supervision and designing effective mechanisms for the supervision of institutions. It would be counterproductive in this sense simply to set up unified supervision as a means to an end in order to give banks direct access to ESM funds. The timetable is of major importance. In this key task for the EU and monetary union, the proper functioning of centralised supervision must be ensured before a transfer of powers becomes effective. The decision by the heads of state or government on 19 October 2012 at least to extend the operational implementation of the supervisory mechanism over the course of 2013 is thus a step in the right direction.

According to the European Commission’s draft proposals, responsibility for supervision of all the

¹ See European Commission, The Banking Union, MEMO/12/413 of 6 June 2012.

banks in the euro area should be transferred to the ECB. This raises the question whether Article 127 (6) of the TFEU allows such a major transfer of tasks. Furthermore, the ECB's assumption of supervisory functions requires special measures in order to avoid conflicts of interest between monetary policy and banking supervision and to prevent any encroachment on central bank independence, which *per se* also includes tasks pursuant to Article 127 (6) of the TFEU. In addition, the Eurosystem's primary objective of safeguarding price stability must not be jeopardised. The draft regulation stipulates for this purpose, *inter alia*, the creation of a separate supervisory body; this should prepare and implement decisions for the ECB Governing Council, which is ultimately responsible, and perform certain tasks independently. In terms of content, the establishment of such a body is to be welcomed. However, it is doubtful whether the granting of decision-making powers to a new body alongside the ECB Governing Council is consistent with European primary law. Moreover, on account of the fiscal effects of regulatory decisions, it is appropriate to weight the votes of the members in accordance with the ECB's capital key and not with the simple majority of one vote per council member, which otherwise prevails in the Eurosystem. With regard to the single market, it would also make sense for the single European supervisory mechanism to encompass all member states of the European Union. If this cannot be achieved, a feasible participation mechanism is required for EU countries outside the euro area. Here, too, the framework set by European primary law must be complied with.

Clarification is needed on how to deal with legacy problems in the balance sheets of banks, which in the future will be subject to a centralised supervisory authority and thus obtain access to ESM funds. If policymakers decide to commu-

nitise these balance sheet legacy burdens, this would represent a transfer, which must not be concealed – especially not through a banking union. If policymakers decide against such transfers, and there is much to suggest this, these “grandfather” cases would have to be borne by the member states in question.

The single supervisory mechanism should be supplemented as soon as possible by a European recovery and resolution framework. A permanent coexistence of single European supervision and national resolution regimes is to be viewed critically, as fiscal implications might arise for the member states which they themselves cannot influence. Liability for bank risks (national) and control of the credit institutions (European) would then be segregated. For example, in the event of regulatory failure at the European level, national resolution resources might have to be used. Consistent European regulation would make sense in this respect.

A comprehensive banking union nevertheless harbours the risk of communitising the consequences of economic and fiscal policy failings, in particular through excessive state financing by national banking systems. The danger of a banking union undermining the no-bailout clause in this way should be prevented by an additional regulation. Regulatory measures to reduce risk concentration vis-à-vis individual countries (eg through an adequate risk weighting) are key starting points for a medium-term reform. Moreover, given serious breaches of the rules, powers to monitor and intervene in the economic and fiscal policies of the member states are essential at the European level. A single European deposit protection scheme with an underlying fiscal guarantee is incompatible with the current integration framework and should be of lower priority for the time being.

The duration and complexity of international regulatory initiatives and legislative processes are another argument in favour of retaining a minimum of national flexibility. Particularly in the event of a crisis, individual countries must have the facility to respond quickly and flexibly to new developments. The cost of inactivity in the event of a build-up of systemic risk does not rise linearly as a rule. The tail risks that primarily need to be limited within the context of macroprudential regulation may appear small at first because the probability of their occurrence is slight. However, they cause high costs if they actually do occur.

However, coordination mechanisms have to be introduced at the international level to prevent national policy decisions from having negative consequences for third countries. This question is gaining in importance with the growing integration of the financial markets. In the European context, the ESRB is called upon to take action. The current legislative proposals on CRD IV/CRR give the ESRB a key role to play in preventing undesirable effects caused by national authorities' deployment of macroprudential instruments.

National flexibility would remain a matter of economic significance if a banking union were set up in Europe. The complete transfer of macroprudential powers to the new European supervisory authority should be rejected. Even after a banking union were set up, economic and macrofinancial differences would continue

National flexibility would remain a matter of economic significance if a banking union were set up in Europe.

to exist between the member states. It is therefore necessary to have macroprudential instruments at the ready that are differentiated by sector and region in order to tackle systemic risks effectively in future.⁴

According to the ESRB's recommendation on national authorities' macroprudential mandate, an institutional framework is needed at the national level.⁵ Against this backdrop, in October 2012 the German Bundestag passed an Act to Strengthen German Financial Supervision (*Gesetz zur Stärkung der deutschen Finanzaufsicht*). This piece of legislation provides for the establishment of a relevant committee in which the Bundesbank will assume a key role. The committee will be able to issue warnings and recommendations (see also the box entitled "Macroprudential oversight in Germany" on page 85).

Macroprudential toolkit is being assembled

An effective macroprudential policy requires suitable instruments for containing systemic risk. They may differ greatly in terms of their origin and form, and may be predicated on the economic and financial cycle as well as on structural changes within the financial system itself.

Macroprudential policy therefore needs an effective toolkit of instruments that can be adjusted and updated if necessary (see Table 7.1). In particular, this toolkit should cover all the main drivers of risk and, besides fiscal policy measures, primarily make use of supervisory instruments such as capital, liquidity and financial leverage. Given that the financial system is mainly built around banks, it is of considerable importance how these instruments are enshrined in bank regulatory standards.

Macroprudential policy needs an effective toolkit of instruments that can be adjusted and updated if necessary.

⁴ See also J de Larosière (2009), pp 32–33.

⁵ See European Systemic Risk Board (2011).

Macroprudential oversight in Germany

On 25 October 2012, Germany's lower house of parliament, the Bundestag, passed the Act to Strengthen German Financial Supervision (*Gesetz zur Stärkung der deutschen Finanzaufsicht*). The Act will be submitted to the upper house, the Bundesrat, for consideration on 23 November 2012 and is due to enter into force on 1 January 2013. At the European level, the European Systemic Risk Board (ESRB) has been monitoring financial stability in the EU since early 2011, and has submitted a recommendation for national macroprudential mandates, which has already been implemented in the German Act. This brings German legislation into line with the most recent European developments.

The main focus of the Act is on strengthening cooperation between the Bundesbank, the Federal Financial Supervisory Authority (BaFin) and the Federal Ministry of Finance in the sphere of financial stability. In addition, it aims to better synthesise microprudential and macroprudential oversight. To achieve this, the Act envisages the establishment of a German Financial Stability Board, on which the three aforementioned institutions will each have three representatives. The Federal Ministry of Finance's involvement ensures that, in a crisis situation, all responsible government bodies have access to the best possible information and are able to carry out their tasks. For the same reason, the Financial Market Stabilisation Agency (FMSA) will also have one representative on the Board, albeit without voting rights. The Financial Stability Board will convene at least four times a year. At its meetings, Board members will discuss, in particular, issues that are key to financial stability and will be able to issue warnings or recommendations. The Board will report to the Bundestag once a year. It will

also be tasked with giving advice to recipients of warnings or recommendations from the ESRB.

The Act assigns the Bundesbank a prominent role, which includes responsibility for the ongoing analysis of issues that are key to financial stability, and for identifying and assessing risks to financial stability (macroprudential oversight). Based on these ongoing activities, the Bundesbank will prepare the Financial Stability Board's meetings and draw up status reports as a starting point for the Board's discussions. If the Bundesbank identifies any threats to financial stability on the strength of its analyses, it will submit proposals to the Board on how to avert or reduce such threats in the form of warnings or recommendations. These warnings and recommendations can be addressed to the Federal Government of Germany, BaFin or any other public sector institution within Germany. Recommendations outline suitable measures to avert the identified threat. Any entity receiving a recommendation will be obliged to inform the Financial Stability Board within an appropriate timeframe of how it means to implement the recommendation or why it does not intend to do so. The Bundesbank will monitor and evaluate the measures taken to implement the recommendation and will forward its assessment to the Financial Stability Board. The quality of the Bundesbank's analyses will depend largely on the data available to it. It will therefore be given comprehensive data access rights. To minimise the burden on the reporting entities, the Bundesbank must acquire existing data from other authorities. Any data which cannot be obtained in this way – say, because they have not yet been collected – may be accessed by the Bundesbank on the basis of a statutory order which has yet to be issued.

**Macroprudential instruments:
 planned scope for action at the national level***

Table 7.1

Policy target	Time dimension	Cross-sectional dimension
Entity		– Level of own funds ¹ – Liquidity requirements ^{1 2} – Leverage ratio – Capital surcharges for systemically important financial institutions (SIFIs) ³ – Public disclosure requirements ¹
Exposure	– Scope for adjustment with regard to real estate loans (eg loan-to-value) – Risk weights for intra-financial sector exposure ¹ – Risk weights for exposures secured by residential or commercial real estate ¹ – Countercyclical capital buffer	– Systemic risk buffer ⁴ – Large exposure limits ¹

* Based on the general approach adopted by the Economic and Finance Ministers Council on transposing Basel III into European law (CRD IV/CRR).
 1 Possible national measures pursuant to Article 443 CRR; following an approval procedure. 2 Possible as from entry into effect of the liquidity coverage ratio (LCR); requirements for banks depend on the asset classes held. 3 Part of the Basel III agreements; concrete transposition into European law still open. 4 It is to be possible to make the systemic risk buffer both entity-based and exposure-based (Article 124a CRD IV).

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One such instrument is the countercyclical capital buffer, a measure provided for in the Basel III framework. Its introduction together with the mutual recognition of an established buffer (principle of reciprocity)⁶ is a milestone (see also the box entitled “Countercyclical capital buffer for credit exposures to German counterparties” on pages 87 and 88). Additionally, EU plans to introduce a further capital buffer for systemic risks will make it possible, amongst other things, to subject banks to permanently higher capital requirements. Moreover, it is planned to allow member states to stipulate more stringent regulations for a defined set of requirements for a limited period of up to two years. These include a general increase in the level of own funds, restrictions on large exposures as well as public disclosure requirements. In addition, the possibility will be introduced to increase requirements and risk weights for exposures secured by residential or commercial real estate and for intra-financial sector

exposures. This is necessary to strengthen the resilience of the banking system in general and address systemic risks in particular.

In order to ensure an effective national macroprudential policy, the CRD IV/CRR package will also make it possible to adjust liquidity requirements if necessary – but they have to enter into effect first. For instance, the short-term liquidity coverage ratio (LCR), which has been agreed under Basel III, will probably apply from 1 January 2015. From a macroprudential perspective, one positive aspect is the LCR’s buffer function, meaning that in times of major stress it will also be possible to undershoot it temporarily. Under

⁶ If Germany, for example, were to implement a buffer of 1% for claims on domestic borrowers, other countries would have to impose the same buffer on their banks for cross-border claims on German borrowers. An institution’s buffer is therefore composed of the exposure-weighted average of the respective national buffers.

Countercyclical capital buffer for credit exposures to German counterparties

The Capital Requirements Directive IV (CRD IV) outlines the basic operating principles of the countercyclical capital buffer. The ratio of credit volume to gross domestic product (GDP) is the starting point for setting the buffer. Coupling credit to economic output is intended to neutralise the impact of normal cyclical fluctuations on credit volume. This procedure is designed to identify phases of excessive lending, which often lead to systemic risk. The countercyclical capital buffer will be deployed whenever the credit-to-GDP ratio considerably exceeds its long-term trend level, as this is indicative of excessive lending. To enable an initial evaluation of this method for Germany, this box illustrates the calculation of the countercyclical capital buffer based on the guidance issued by the Basel Committee on Banking Supervision in December 2010.

The starting point is a relatively broad credit aggregate: loans granted by domestic banks to domestic enterprises and households, including securities issued by domestic enterprises and held by domestic banks. The ratio of credit to GDP is decomposed into two components using the Hodrick-Prescott filter: the long-term trend and the cyclical deviation from the trend (also known as the credit-to-GDP ratio gap).¹ If the credit-to-GDP ratio gap is greater than the lower bound of 2 percentage points, a countercyclical capital buffer should be built up. In the Basel guidance, the size of the capital buffer is calculated as a linear function of the credit-to-GDP ratio gap.² The buffer peaks at 2.5% of risk-weighted assets³ when the gap reaches 10 percentage points. The Basel upper and lower bounds for the credit-to-GDP ratio gap are

derived from an empirical study which was conducted by the Bank for International Settlements (BIS) on historical banking crises for a panel of 25 countries.

The chart on page 88 shows the profile of the credit-to-GDP ratio gap and the countercyclical capital buffer for credit exposures to German counterparties from 1960 to 2011. The indicator's performance cannot be assessed in a meaningful way during the technical run-up period until 1980.⁴ Apart from the brief rise above the lower bound at the beginning of the 1980s, it is only the period between 1994 and 2001 that has been identified as a phase of excessive lending. The signal this sends is striking, as the credit-to-GDP ratio considerably exceeds its long-term trend persistently over a number of years. According to the Basel methodology, during that

1 The Hodrick-Prescott filter is traditionally used in business cycle research. Its smoothing parameter determines the length of the cycle and the smoothness of the trend: the higher the parameter, the smoother the trend. See Basel Committee on Banking Supervision, Guidance for national authorities operating the countercyclical capital buffer, December 2010. The value of 400,000 proposed by the guidance is quite high. Additional technical details that need to be taken into account when implementing the Hodrick-Prescott filter are the length of the time series and the revision of the end-of-sample results; for more information, see R M Edge and R R Meisenzahl, The unreliability of the credit-to-GDP ratio gaps in real time: Implications for countercyclical capital buffers, *International Journal of Central Banking*, Vol 7, No 4 pp 261–298.

2 According to CRD IV, the ratio for the countercyclical capital buffer can only be changed in 0.25% increments (or a multiple thereof). For reasons of simplicity, a continuous linear function is used here.

3 This corresponds to the limit of unconditional reciprocity. However, at national discretion, the capital buffer may also be set at a higher level than 2.5%.

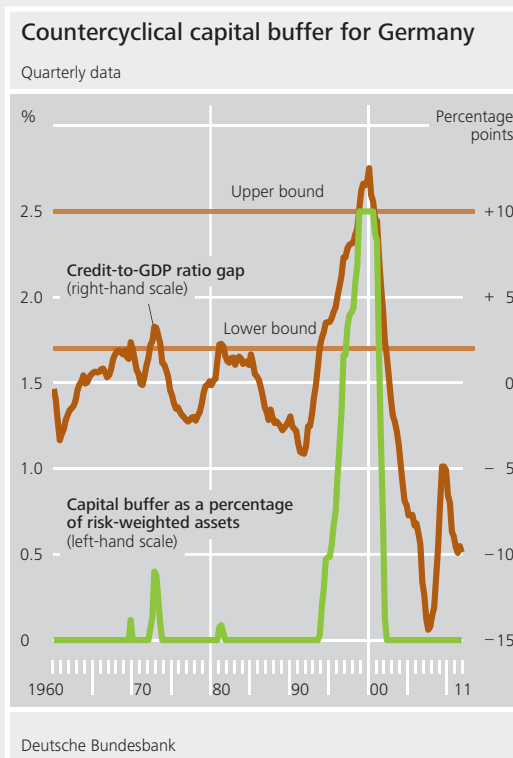
4 The first 80 quarters provided direct input for calculating the trend. One more observation was then added for each subsequent quarter, as in a real-time calculation.

time a capital buffer should have been provided for credit exposures to German counterparties. This measure seems appropriate in view of the increase in write-downs in the German banking sector in the subsequent years. Since the current financial crisis originated outside Germany, it is not indicated by the credit-to-GDP ratio gap – which is based on domestic lending. However, German banks with an international focus would not have faced the crisis without a capital buffer, as they would have been required to hold one when lending to other countries.⁵

Overall, the credit-to-GDP ratio gap shows good results for Germany and – after further analyses – outperforms indicators solely based on credit growth.⁶ However, due to the small incidence of bank crises in Germany, the empirical evidence is, statistically speaking, insufficient to make a final quality assessment of this indicator. It is therefore necessary to observe further auxiliary variables that are able to provide information on excessive lending. These indicators include, above all, credit margins as well as data on credit standards and indicators of risk appetite in the financial sector.

Implementing a strictly rule-based approach to making a countercyclical capital buffer operational is not the answer. As credit and economic cycles are not synchronised, a positive cyclical deviation from the trend may arise as a result of GDP contraction, which would then signal, incorrectly, that a buffer should be built up in an economic downturn.

In addition, the lag in data availability alone could cause the credit-to-GDP ratio gap to indicate too late when to release the buffer. This is where real-time market indicators, such as equi-



ty prices and prices for credit default swaps and bonds, could provide valuable information.

In view of the above-mentioned findings, it appears difficult to develop and apply a purely mechanical rule to set the buffer. Instead, guided discretion will play an important role in the decision-making process regarding the countercyclical capital buffer. The formal rules will therefore assume added importance inasmuch as they affect the accountability of decision-makers.

⁵ The buffer is calculated as a weighted average of buffer ratios applied in the countries to which a bank has credit exposure.

⁶ As, for instance, proposed by R Repullo and J Saurina. See R Repullo and J Saurina, *The countercyclical capital buffer of Basel III: A critical assessment*, CEMFI Working Paper 1102, March 2011.

Basel III arrangements, the second liquidity standard (net stable funding ratio, NSFR) is to apply from 2018 after a review period. If rigorously introduced, this second, structural ratio has the potential to help make the financial system more stable.⁷ The NSFR will ensure a more stable match of assets and liabilities, and in particular should drive down short-term wholesale funding which can quickly drain away.

Finally, an upper borrowing limit is to be introduced for banks in the shape of the leverage ratio. According to the Basel rules, the leverage ratio will initially be introduced as a monitoring metric at a time-constant 3%, and up to 2017 will be reviewed by the Basel Committee on Banking Supervision with a view to making any necessary adjustments. On this basis, a final decision will be reached concerning the regulatory deployment of the leverage ratio. It could help curb excessive balance sheet growth, for which reason it ought to be introduced as from 2018 as agreed.

Need for analysis still great

Further pressure to take regulatory action and a need for analysis exist over and above the areas just described, not least because macroprudential instruments have so far focused on regulation through capital buffers in the banking sector. This increases the incentive to circumvent capital buffer rules, or to offload business to the non-banking sector. To prevent such evasive action, macroprudential regulation should draw on a mix of different instruments. In this context it would be important to examine how the use of such instruments can be optimised by the right combination and application of macroprudential tools. Furthermore, instruments need to be developed that are geared to systemic risks that arise in the securities or insurance markets and the shadow banking sector.

The macroprudential instruments described above are only an initial – and by no means exhaustive –

selection of potential tools for containing systemic risks. It cannot be assumed that all the available instruments will actually be deployed, far less that they will be used simultaneously. That will depend on the identified risks and on the threat that exists at any given time. In this connection, consideration should also be given to side-effects and interactions with other policy areas. Economic analyses help provide a better understanding of the transmission and impact of macroprudential policy.

The adjustment of existing and the development of additional instruments may even give the market players affected some relief if macroprudential interventions can be more accurately targeted in this way. Thus, as well as the development of new instruments, the correct calibration and dosage pose a major challenge. Proceeding from these principles, suitable instruments must now be selected and put into operation. European and international bodies such as the ESRB and the Committee on the Global Financial System (CGFS) are currently concerned with these issues.

The correct calibration and dosage of macroprudential tools pose a major challenge.

Regulation of the OTC derivatives market will take effect later than planned

One area of the financial system that plays a pivotal role in financial stability is the global OTC derivatives market (see Chart 7.1). Regulators and supervisors focused their attention on this market in the wake of the financial crisis. Between 2002 and 2008, the OTC derivatives market grew by around 330%, and

⁷ See C Goodhart and E Perotti (2012).

Over-the-counter (OTC) derivatives market*

Chart 7.1

Year-on-year percentage change



Sources: BIS and Bundesbank calculations. * Calculations based on the nominal values of OTC derivatives contracts of reporting banks worldwide.

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in 2008 had a volume of US\$592 trillion⁸ or roughly ten times global GDP.⁹

A blind eye was turned to risks

At first, regulatory authorities assumed that only professional and therefore risk-aware market players were operating in this market. It was thought that the derivatives traded, such as futures, options and swaps, were being used to hedge financial risks arising from interest rate, equity, foreign exchange, credit and commodity contracts.

Yet as far back as 1998,¹⁰ and again in 2007,¹¹ central banks warned of the need for improvements in the settlement of OTC derivatives, as the market participants' risk management systems did not appear to be adequate and the market participants themselves no longer had a precise picture of their aggregate derivative positions. Another factor was that some market participants deliberately used derivatives to incur additional risks that were not induced by their primary business, and that at some banks derivatives trading made a large contribution to profits. The risk of a major player defaulting, nullifying the value of the derivative hedges for its coun-

terparties, materialised with the collapse of the Lehman Brothers investment bank at the height of the financial crisis in 2008. The government bail-out of the US insurance group AIG, too, underscored the urgency of introducing global regulation in order to prevent a renewed concentration of risk.

Regulation takes shape

After almost two years of consultations, the European Market Infrastructure Regulation (EMIR), which applies to the EU financial markets, entered into force on 16 August 2012. In a second step, the corresponding technical standards were drawn up by the end of September 2012,¹² and still have to be passed by the European Commission. The aim of these regulatory measures is to help limit both individual counterparty risk and systemic risk in the OTC market – ie the danger that the default of one market participant might lead to the default of others – and to make these risks transparent for supervisors. In particular, a new central clearing requirement makes it mandatory to clear standardised derivatives contracts through central counterparties (CCPs). Another component of EMIR that will enhance transparency is the mandatory reporting of derivatives transactions to trade repositories, which is expected to enter into effect in the summer of 2013.

Furthermore, as the Basel Committee announced in July 2012,¹³ the EU Regulation on prudential requirements for credit institutions and investment firms (CRR) provides for higher capital requirements for OTC derivative transactions. In future, positions which are cleared through a CCP are generally to require a moderate 2% capital backing. Capital

⁸ See Bank for International Settlements (2009)

⁹ Source: International Monetary Fund, calculated at current exchange rates.

¹⁰ See Committee on Payment and Settlement Systems (1998).

¹¹ See Committee on Payment and Settlement Systems (2007).

¹² See European Securities and Markets Authority (2012).

¹³ See Basel Committee on Banking Supervision (2012), p 3.

requirements for OTC derivative transactions that are still settled bilaterally will be significantly higher. Moreover, these OTC derivatives will be subject to stringent post-trade and risk management rules that are designed to deter circumventions of the central clearing requirement. Work on the uniform standards for the collateralisation and risk management of OTC derivative transactions that are still settled bilaterally will continue at the international level until the end of this year. For this reason, no concrete requirements have entered into effect in the EU as yet.

Time lags and exceptions prevent complete achievement of targets

The lack of clarity over the exact form the requirements will take has so far made market participants hesitant about using CCPs. According to estimates for the global market, at the end of August 2012,

The lack of clarity over the exact form the requirements will take has so far made market participants hesitant about using CCPs.

only around 40% of all OTC interest rate derivatives and only around 10% of all credit default swaps were routed through CCPs.¹⁴ Besides, the rules that have been passed in the meantime are tempered by a number of temporary exceptions, eg for pension funds. As a result, in some cases the full effect will not be felt until later. The aim of the rules, namely to regulate and thus rein in the OTC derivatives market, can be achieved despite the time delay. Growth on the OTC derivatives market slowed down in the crisis years of 2008 and 2009, without new rules and regulations being implemented. This development probably resulted in part from the crisis situation itself as well as from technical innovations such as trade compression.¹⁵ However, since 2010, the OTC derivatives market has again grown faster than global GDP. The new

regulation seeks to combat this development, which is a matter of concern with regard to financial stability.

The obligation to use CCPs for standardised derivatives contracts and the collateralisation and capital requirements that apply to contracts that are still being settled bilaterally increase the costs for using derivative instruments appreciably. For this reason, a drop in the use of these products in the short to medium term is highly probable,¹⁶ whilst it is difficult to assess the long-term effects. Amongst other things, these will depend on the form the technical standards ultimately take, the transition periods until they are actually implemented and the scope of the derivative classes covered by the central clearing requirement as well as on when the exceptions cease to apply.

Transparency improving

What is certain is that users of OTC derivatives, supervisors and the public at large will in future be able to gain more extensive information about potential sources of risk. This improvement in transparency will be made possible by the mandatory obligation to report all derivatives contracts to trade repositories. In this case, too, however, the G20's aim to have a detailed overall picture of the OTC derivatives market will not be achieved in the foreseeable future.

Besides delays due to outstanding regulatory implementation rules and transition phases, the large

¹⁴ See Financial Stability Board (2012).

¹⁵ With this process, gross notional amounts outstanding are reduced, while retaining the same risk profile. Market participants' offsetting claims under derivatives are determined, called in and replaced by a smaller number of transactions on a regular basis. In this way, it is possible to reduce risks, costs and inefficiency that retaining unnecessary transactions in the counterparties' books would entail.

¹⁶ See Goethe University Frankfurt/PricewaterhouseCoopers (2012).

number of trade repositories that will be set up, in particular, will lead to a fragmentation of information.¹⁷ What is more, authorities that have a financial stability mandate have yet to be issued with definitive guidelines on accessing the data needed to perform their task. The Financial Stability Board (FSB) has commissioned the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) to examine the question of supervisory access to data stored at trade repositories. This work is to result in principles that will facilitate access by microprudential and macroprudential supervisors to these data. Such access will be key to including extensive and timely information on the OTC derivatives market situation in financial stability analysis.

Pushing for implementation at the international level

A further objective of EU regulation is to have the trading of suitable derivatives shifted to transparent trading platforms. To achieve this, it is necessary above all to standardise derivative transactions. Market participants expect the share of exchange-traded derivatives in relation to the overall volume of traded derivatives will be as much as 30% by 2015,¹⁸ and anticipate that the use of CCPs for bilateral derivative transactions will increase considerably. Much will depend on the extent to which the implementation of financial market reform, which has progressed at very different speeds, leads to harmonised national regimes and is taken up by all jurisdictions. On the OTC derivatives market, it is especially easy for market participants to shift transactions to less regulated jurisdictions. This jeopardises the success of regulation, however, and could even help create new concentrations of risk.

Given the large volumes still traded on the OTC derivatives market and its close interconnectedness, it is crucial for financial stability to push ahead with

the regulatory process and also to urge jurisdictions that have so far shown little willingness to commit to OTC derivatives market regulation so as to prevent regulatory arbitrage.

Coherence of regulation is crucial

In the fundamental reordering of the rules for the international financial system (re-regulation), it is important to adopt a systemic point of view. One of the challenges in this is that the regulation of the financial system has hitherto been geared to a sector-specific view. This is reflected in the way the regulatory standards and principles applying to the banking, insurance and securities sectors have developed independently of one another for the most part. Whenever there is regulatory reform in a given sector, the regulatory authorities have to make implicit assumptions about how other sectors will behave, and this can easily give rise to an overly static approach. In reality, dynamic interactions occur. At the same time, the boundaries between the different sectors of the financial system have become increasingly blurred in recent years, making a sector-specific approach ever more limited.¹⁹

The boundaries between the different sectors of the financial system have become increasingly blurred in recent years.

¹⁷ See Financial Stability Board (2012).

¹⁸ See Goethe University Frankfurt/PricewaterhouseCoopers (2012).

¹⁹ See also The Joint Forum (2010), p 11.

Systemic perspective required in regulation

At European level, work is currently under way on a number of legislative proposals, which are at very varied stages of development. Among the most important regulatory projects at EU level in this connection are the transposition of the Basel III capital rules into European law (CRD IV/CRR) and the new solvency regime for the European insurance sector (Omnibus II/Solvency II). Both are currently the subject of trilogue negotiations between the European Parliament, the EU Council and the European Commission. The Recovery and Resolution Directive (RRD) for credit institutions and securities firms and the directive on deposit insurance schemes are at the stage of European Commission legislative proposals. Also of relevance are the new standards for global systemically important banks, agreed by the Basel Committee on Banking Supervision in November 2011,²⁰ and the European Market Infrastructure Regulation (EMIR).

Prevention of incentives for regulatory arbitrage

One of the most important reasons for adopting a systemic perspective across different regulatory initiatives which directly or indirectly affect the same areas of business being regulated is the prevention of regulatory arbitrage. This applies not just to international arbitrage,²¹ but also to the shifting of transactions and risks between the different sectors of the financial system, primarily the banking, insurance and shadow banking sectors.²² For instance, the new rules in the banking and insurance sectors may lead to a migration of risks between the two sectors. There are initial indications that differing regulatory treatment of the same risks may lead to increased real estate lending on the part of insurers.²³

The significant extent to which regulation in one part of the financial system can have an impact on

other areas within it and ultimately on the system as a whole was apparent even before the financial crisis began. The movement of business and transactions out of the regulated banking sector into the less regulated shadow banking system contributed to an increase in systemic risk.

Evasive manoeuvres are nevertheless not a negative development in principle, from a macroprudential point of view. It may be of benefit if particularly high-risk transactions migrate from banks to market players that are better able to cope with losses and are not deemed to be too big to fail. For instance, hedge funds may be better suited to certain transactions if they specialise in the management of the relevant types of risk.

Cumulative effects of regulation bring risks for financial stability

In addition to the dangers from regulatory arbitrage, the cumulative effects of the reforms also need to be borne in mind. One example is the total amount of capital surcharges which will be required of global systemically important banks, in particular, over and above the new, increased capital requirements under Basel III.²⁴ There are also the additional costs of financing restructuring funds and deposit insurance schemes. Credit institutions in Germany, for instance, have been obliged since 2011 to contribute to a German restructuring fund through a bank levy. In addition, a European Commission impact

²⁰ The requirements for additional loss-absorbency capacity for SIFIs are to be phased in between 1 January 2016 and the end of 2018 and enter into force fully on 1 January 2019.

²¹ The systematic shifting of business operations or transactions to less stringently regulated jurisdictions.

²² See also the section entitled "The shadow banking system: small in Germany, but globally connected" on pp 67–78 as well as I Ötker-Robe and C Pazarbaşıoğlu (2010), p 26 and International Monetary Fund (2012), p 11.

²³ See also the section entitled "Signs of a realignment of insurers' capital investment strategy" on pp 46–47.

²⁴ Capital conservation buffer (up to 2.5%), countercyclical capital buffer (generally up to 2.5%), SIFI buffer (up to 3.5%).

study has shown that the contributions from credit institutions to the deposit insurance schemes could rise significantly as a result of the planned reform.²⁵ These cumulative charges on credit institutions are geared explicitly to reducing the risk of the need for government bail-outs by ensuring a stronger capital base and adequately endowed restructuring funds and deposit insurance schemes. In this way, the aim is to reduce the implicit subsidies entailed and the distortion in the allocation of capital – and to eliminate them altogether in the long term. Another example of the issue of the cumulative effects of regulatory initiatives all working in the same direction is the new rules planned in CRDIV/CRR, in the Recovery and Resolution Directive and in SolvencyII, and the effects thereof on banks' funding terms.

The aim of the above-mentioned reforms is to reduce implicit state guarantees. This means that, in future, funding costs are likely to reflect a bank's actual risk profile more closely. This provides for market discipline and is thus desirable in terms of macroeconomic policy and necessary from a macroprudential point of view in terms of reducing systemic risk and ensuring a consistent set of incentives. On the other hand, the various reform plans are likely to mean diminished future earnings opportunities for the banks and lead to tighter conditions for borrowers. Although low-cost borrowing has no merit in and of itself, the effects of the range of regulatory initiatives nevertheless need to be considered. If necessary, new rules should be introduced in conjunction with appropriate transition periods.

In future, funding costs are likely to reflect a bank's actual risk profile more closely.

Another cause for concern is asset encumbrance. This is being driven, first, by the trend towards collateralised transactions – a desirable trend in terms of risk control for individual economic entities – and, second, by new rules such as the LCR, CRR, RRD and

EMIR. In the event of insolvency, this could result in higher demands being made on deposit insurance schemes, as fewer assets might be available with which to refund depositors. At the same time, these developments make it more difficult to force creditors to play a part in the rescue of distressed banks (bail-in). This can only work if there is sufficient uncollateralised loan capital to convert into equity capital.²⁶

Interaction impairs effectiveness of regulation

As well as regulatory arbitrage and cumulative effects, attention also needs to be paid to the potential for interaction between the different regulatory initiatives. Some of the proposed reforms run the risk of engendering countervailing effects or of creating conflicting incentives. This lack of coherence may diminish or even completely cancel out the desired effects of the new rules. One example might be the interplay between CRDIV/CRR and SolvencyII. While the purpose of the CRDIV/CRR rules is to place bank financing on a more stable, long-term footing (particularly by means of the NSFR liquidity requirement), SolvencyII gives preferential treatment, under certain conditions, to bank bonds with short maturities. At least if the standard formula²⁷ set down in the regulations is used, the own funds requirements for bank debt securities with longer maturities held by insurers rise relatively sharply. Because insurers are among the biggest investors in bank bonds, a significant shift in asset allocation in the insurance sector away from bank debt securities could have an impact on the banking sector and increase banks' funding costs.

Lack of coherence may diminish the desired effects of the new rules.

²⁵ See European Commission (2009).

²⁶ See J Zhou et al (2012), pp 21–22.

²⁷ Insurers are free to use internal models certified by the supervisory authorities as alternatives to the standard formula.

However, in the absence of the final calibrations and of empirical evidence, no definitive judgement can yet be made on the effects of the simultaneous implementation of two such key regulatory initiatives as CRD IV/CRR and Solvency II.

Similar concerns apply to the Recovery and Resolution Directive and the planned LCR requirements in CRD IV/CRR. The RRD draft envisages exempting short-term liabilities from the bail-in process, and thus creates incentives for short-term financing, something which is diametrically opposed to what the LCR (and the NSFR) seeks to achieve. In some cases, there are contradictions even within one and the same regulatory initiative. There is reason to fear, for instance, that the capital and liquidity rules applying to government bonds could give rise to opposing incentive effects. On the one hand, the proposal to use a leverage ratio as an observation metric, and the public debate about the suitability of a risk weighting of 0% as envisaged in the standard formula, could lead banks which use the standard formula to reduce their holdings of government bonds. On the other hand, the recognition of government bonds as “high-quality liquid assets” under LCR rules is likely to create incentives for banks to hold government bonds or to increase their holdings. Interaction might also arise between the RRD and the directive reforming deposit insurance schemes, with discussion taking place about including unprotected deposits or deposit insurance schemes in the restructuring of a credit institution.

Risks of undesirable side-effects increased

Unintended side-effects from regulatory reforms need to be considered, too. In view of the range of major initiatives in the same field at European level and the growing complexity which this brings, this aspect is of particular relevance at present.²⁸ A clear example is the issue of homogeneity and heterogeneity in the financial system. Regulatory measures

working in the same direction may give rise to systemic risks caused by a lower level of diversity in the system. These risks include correlated risk positions, for instance through a preference for certain high-quality government bonds. For example, Solvency II and Basel III *per se* increase the incentives for investing in government bonds and covered debt securities. As a result, the portfolios of banks and insurers may start to converge, which would interconnect the two sectors more closely and make both groups vulnerable to similar risks. Other systemic risks could arise from a potential accentuation of procyclicality if the countercyclical measures in CRD IV and Solvency II should prove to be deficient (at the same time).²⁹ If these macroprudential mechanisms are based on faulty assumptions, models or indicators, then mechanisms originally intended to be countercyclical could, in combination, even accentuate procyclicality in the financial system.

Regulatory measures working in the same direction may give rise to systemic risks caused by a lower level of diversity.

Closing gaps in knowledge

These examples show that a complete overview of the various regulatory initiatives may be lacking. This implies a need for impact studies which embrace this overall perspective. This is a major challenge, compounded by a lack of leadership so far from academic work.³⁰

²⁸ See A G Haldane (2012), p 11.

²⁹ CRD IV: capital conservation buffer and countercyclical buffer; Solvency II: countercyclical premium, matching adjustment and equity dampener.

³⁰ For example, see A Al-Darwish et al (2011), p 53, who cite a generally recognised list of undesired side-effects resulting from regulation.

Macroprudential structural policy: too-big-to-fail problem not resolved

In addition to the issue of coherence across the various regulatory initiatives, questions also arise with respect to achieving a more stable structure for the financial system and the banking system in particular. Despite some initial progress in this area, the too-big-to-fail problem is yet to be resolved. There is still a risk that the collapse of particularly large, complex, interconnected institutions with global operations or with business activities which make them difficult to replace would jeopardise the entire financial system. A debate has thus started about whether structural measures need to be taken over and above the current regulatory reform. This discussion centres on introducing a system of segregated banking functions, ie separating deposit-taking and lending business from proprietary trading and investment banking.

Segregated banking functions may help ensure greater financial stability

The main argument in favour of segregated banking functions is the avoidance of contagion effects. The purpose of separating deposit-taking and lending from capital market business is to prevent a crisis in one of the two areas of business from spilling over into the other. Banks would focus on traditional deposit-taking and lending business with personal customers and enterprises and supply credit to the real economy. On the other hand, institutions which engage in risky transactions not related to the real economy would be excluded from the deposit insurance schemes, and, if things went wrong, would not be rescued by the government at taxpayers' expense.

Thus, by separating the two areas of business, depositor protection could be improved, as depositors would be safeguarded from the risks inherent in investment banking. This is desirable, not least because *in extremis* the use of deposit insurance funds may have direct fiscal consequences. At the same time, this system would counteract the problem of moral hazard arising from having access to insured deposits. Banks would no longer have the option of transferring risks incurred in their investment banking activities to deposit insurance systems. It would be more difficult to finance risky areas of business through insured deposits.

But an interconnected financial sector remains a fact

It needs to be borne in mind, however, that the interconnectedness of the financial sector and the resulting systemic importance of individual institutions cannot be entirely eliminated by introducing a system of segregated banking functions. Even if there were a clean organisational separation, commercial interconnections would remain, such as through the direct business relationships of banks with one another and indirectly through payment settlement and securities settlement systems or the respective asset investments.

The interconnectedness of the financial sector cannot be entirely eliminated by introducing a system of separated banking functions.

There are also issues of practical implementation, as the boundaries between customer business, hedging transactions, market making and traditional proprietary trading are fluid. Directly connected to the problem of where to draw the line is the danger of transactions and risks being shifted to areas which are less closely regulated and monitored, such as the transfer of proprietary trading to hedge funds.

Finally, it needs to be taken into consideration that a pure system of segregated functions may lead to a loss of economic efficiency, as the potential for synergies and diversification³¹ typical of the universal banking model would remain unutilised – though the precise extent of these effects is difficult to gauge.

Reform initiatives in the United States and the United Kingdom

The discussion around segregated banking functions needs to take account of long-standing structures and financing practice in national financial systems. The current reform proposals reflect the differing characteristics of national systems. In the United States, the Volcker Rule enshrined in the Dodd-Frank Act seeks to prohibit proprietary trading by banks and to place severe restrictions on certain forms of investment such as hedge funds and private equity funds. By contrast, the plan in the United Kingdom, based on the recommendations from the independent Vickers Commission, is to ringfence deposit-taking and the provision of credit facilities at UK banks in legal, organisational and operational terms, leaving other activities, in particular capital market business, outside the ringfence. However, a complete separation is not envisaged, but rather a segregated through the establishment of dedicated subsidiaries.³²

The Volcker and Vickers proposals are closely geared to the capital-market-based manner in which the Anglo-Saxon financial systems operate. In contrast, enterprises in continental Europe, and especially in Germany, are financed principally through bank loans and expect to receive all their financial services from a one-stop shop. The result is generally a close, long-term relationship between banks and their customers (“relationship banking”). The resulting advantages in the supply of information are of use to universal banks in particular.³³

Proposals from the Liikanen Group

This difference is reflected in the work of the expert group on reforming EU banking structures chaired by the Governor of the Finnish central bank, Erkki Liikanen.³⁴ In its report presented in October 2012, it proposes separating proprietary trading and other high-risk trading activities (in particular, all assets and derivative transactions in market making and lending to hedge funds) from deposit-taking business as soon as certain thresholds are exceeded. Proprietary trading and other trading activities are to be placed within separate legal entities. These would have to finance themselves and would no longer be able to access retail deposits. Asset transfers between the deposit-taking institution and the trading unit would be possible only on inter-bank market terms, so preventing the transfer of risk. However, the proposals envisage allowing this segregation within the same group under a holding company, thus retaining the essence of the universal banking model.

The proposals from the Liikanen Group for segregating banking functions are likely to have less far-reaching effects than those of the Volcker Rule (complete ban on proprietary trading) or the Vickers Commission (across-the-board ringfencing of deposit-taking business without the application of thresholds). In particular, the business which the deposit-taking and lending institution would be permitted to engage in is much broader in scope than under the Vickers proposals, for instance, and includes, amongst other things, hedging for non-banks (eg currency and interest rate swap transactions) and underwriting.

³¹ For aspects of income diversification at German banks, see, for example, R Busch and T Kick (2009).

³² See Independent Commission on Banking (2011).

³³ See C Schenone (2004).

³⁴ See High-level Expert Group on reforming the structure of the EU banking sector (2012).

There is no disputing that overly complex groups are very difficult to wind up and therefore have an – implicit – guarantee of being regarded as a going concern. If it were possible to simplify group structures, this would represent a gain for financial stabil-

If it were possible to simplify group structures, this would represent a gain for financial stability.

ity. The organisational segregation of business areas and more transparent structuring may counteract incentive and information problems which increase disproportionately with firm size. This would make financial institutions more transparent and easier to manage, which would be of benefit to the management of the enterprise, to supervisory and management boards and to prudential supervisors. This in itself would make segregation a good thing. However, it cannot be gauged definitively how great the stability gains resulting from a segregation of business units would be, including in comparison to potential efficiency losses.

Development of credible resolution regimes crucial

Directly connected to the discussion about the introduction of segregated banking functions is the development of credible resolution regimes which would enable financial institutions to exit the marketplace without impairing the stability of the financial system and without claiming taxpayers' money.

A number of things have already been achieved in this regard. One key step is a new international standard for resolution regimes, formulated by the FSB and approved by the G20. These Key Attributes of Effective Resolution Regimes for Financial Institutions set out essential features of national resolution regimes on a global level for the first time. They now need to be transposed into national law and regulations consistently and on schedule. For instance,

in future every G20 country is to entrust recovery and resolution functions to appointed authorities. Furthermore, cross-border collaboration between national supervisory and resolution authorities is to be enhanced and requirements put in place for recovery and resolution planning for both institutions and authorities.

The draft directive published in June of this year by the European Commission aimed at creating a framework for the recovery and resolution of credit institutions and securities firms is another important step in enabling orderly resolution and ensuring continuity for critical functions. It includes far-reaching powers of intervention for resolution authorities and envisages the assessment of the resolution capability of all institutions and groups of institutions. In implementing the EU directive, it will be important to attend to issues of compatibility with the FSB framework in order to prevent inconsistencies and new problems from arising if an institution fails.

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Overview of 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 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 Systems 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 Review

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 2012	The financial crisis and balance of payments developments in the euro area
September 2012	The performance of German credit institutions in 2011 – The International Monetary Fund in a changed global environment
July 2012	The new CPSS-IOSCO Principles for financial market infrastructures
April 2012	The European Systemic Risk Board: from institutional foundation to credible macro-prudential oversight
March 2012	National and international financial market shocks and the real economy – an empirical view
January 2012	Long-term developments in corporate financing in Germany – evidence based on the financial accounts
December 2011	German enterprises' profitability and financing in 2010

■ Discussion papers

- 28/2012 Diversification and determinants of international credit portfolios: evidence from German banks
- 27/2012 Early warning indicators for the German banking system: a macroprudential analysis
- 26/2012 Determinants of the interest rate pass-through of banks – evidence from German loan products
- 25/2012 An affine multifactor model with macro factors for the German term structure: changing results during the recent crisis
- 24/2012 Identifying time variability in stock and interest rate dependence
- 22/2012 Relationship lending in the interbank market and the price of liquidity
- 19/2012 Competition for internal funds within multinational banks: foreign affiliate lending in the crisis
- 17/2012 Determinants of bank interest margins: impact of maturity transformation
- 16/2012 Credit risk connectivity in the financial industry and stabilization effects of government bailouts
- 14/2012 The effectiveness of monetary policy in steering money market rates during the financial crisis
- 12/2012 Trend growth expectations and U.S. house prices before and after the crisis
- 11/2012 Credit portfolio modeling and its effect on capital requirements
- 10/2012 Capital regulation, liquidity requirements and taxation in a dynamic model of banking
- 09/2012 Bank regulation and stability: an examination of the Basel market risk framework
- 06/2012 Maturity shortening and market failure
- 05/2012 Regulation, credit risk transfer with CDS, and bank lending
- 04/2012 Stress testing German banks against a global cost-of-capital shock
- 03/2012 Executive board composition and bank risk taking
- 02/2012 Assessing macro-financial linkages: a model comparison exercise