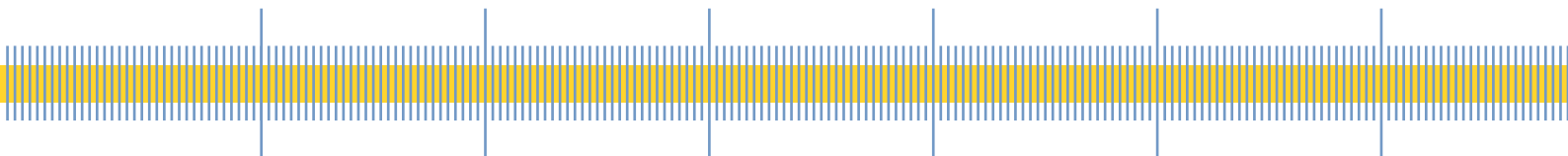


FINANCIAL STABILITY REVIEW 2011



November 2011

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Abbreviations and symbols

p Provisional; e Estimated; . Data unknown, not to be published or not meaningful; – Nil.
Discrepancies in the totals are due to rounding.

Introduction

The Deutsche Bundesbank, as Germany's central bank and guardian of price stability, has an inherent interest in a stable financial system. The Bundesbank's co-responsibility for safeguarding financial stability derives, above all, from its involvement in banking supervision and from its role as an operator and overseer of payment systems. Furthermore, as an integral part of the European System of Central Banks, it has an explicit mandate to contribute to financial stability. The President of the Deutsche Bundesbank is a member of the European Systemic Risk Board (ESRB), which started its work at the beginning of this year.

The Bundesbank defines financial stability as the financial system's ability to fulfil smoothly its key macroeconomic functions – in particular, the efficient allocation of financial resources and risks along with the provision of a well-functioning financial infrastructure – at all times, including in situations of stress and periods of structural upheaval.

The ongoing analysis of the stability situation is aimed at identifying systemically important changes and emerging risks in the primarily bank-based German financial system as early as possible. This includes taking account of interactions within the national and global financial systems, the interdependencies between the financial sector and the real economy as well as the effects of the regulatory framework on the financial sector's functionality and efficiency. The Bundesbank's stability

analysis is based on a risk-oriented approach, which is oriented to downside scenarios. Unlike projections, which show the most likely development, downside scenarios describe potential developments and their implications that might cause major harm to the whole economy, even though the probability of their occurrence appears slight.

This *Financial Stability Review* reflects the Bundesbank's perception of risks and resilience in the German financial system and its assessment of the evolution of the regulatory framework. The analyses are intended as a contribution to the public debate on financial stability. The resulting recommendations to the market participants and policymakers are summarised in Box 1.1 on page 11. These are designed to prompt those involved to take the measures and adjustments that are needed to strengthen the financial system's stability and efficiency. This includes looking beyond the short-term horizon and the concerns of current crisis management.

This year's publication has been written in a difficult and rapidly changing setting in terms of financial stability. In particular, the widening and worsening of the European sovereign debt crisis has generated a great deal of uncertainty. Account has been taken of current developments up to the cut-off date of 8 November 2011.

Financial stability in 2011 – an overview

The risks to the German financial system grew perceptibly as the sovereign debt crisis worsened and widened over the summer of 2011. In addition to the three Troika programme countries Greece, Ireland and Portugal, two large euro-area countries – Italy and Spain – now also risk forfeiting the confidence of the capital markets. At the same time, the sovereign debt crisis and the crisis of confidence in the banking system are reinforcing each other. Cross-border and cross-sector contagion effects are placing added pressure on financial stability in Europe.

Against this backdrop, in July and October 2011, policymakers at the European level agreed on a number of measures. In view of the crisis of confidence in the financial system, a concerted recapitalisation of major European banks and the underwriting of longer-term bank liabilities are planned. Moreover, another aid programme for Greece is envisaged. It includes a voluntary involvement of private creditors in safeguarding the sustainability of Greek public finances. In addition, Italy and Spain have agreed to implement additional measures to consolidate their budgets.

Ultimately, it is vital to tackle the root cause of the crisis of confidence, which lies in unsustainable public finances in a number of euro-area countries. In the

longer term, permanently sound fiscal policy is intended to be brought about in part by closer oversight, by stronger institutions in the euro area and by a strengthened economic union. By providing financial assistance, other countries can only buy time to allow the country in question to initiate and carry out the necessary corrections. However, financial assistance is not a substitute for such corrections. Equally, monetary policy can, within its primary remit of safeguarding price stability, contribute to stabilising the banking system through liquidity measures; monetary policy cannot, however, shield the banking system from the effects of misguided fiscal policy.

As the environment deteriorates, the German banking system, too, faces new burdens. For instance, German banks will probably have to make additional write-downs on Greek government bonds. Moreover, their earnings prospects are gradually being squeezed by recent market developments and the muted economic outlook. However, the German banking system at least enters this period of major uncertainty with improved resilience. Capital levels have risen appreciably in recent years, earnings have been very stable to date, and funding vulnerabilities have been reduced. |

Sovereign debt crisis greatest threat to financial stability

Sovereign debt crisis spreads to other euro-area countries...

Individual euro-area countries are at the centre of the sovereign debt crisis. Doubts about their ability to service and repay high levels of government debt will remain the greatest threat to financial stability in the foreseeable future.¹ Greece was forced to accept financial assistance from the international community in May 2010, and Ireland and Portugal followed suit in November 2010 and May 2011 respectively. In the summer of 2011, Italy and Spain were increasingly sucked into the sovereign debt crisis. This was accompanied by sharp reactions on the financial markets, such as plummeting share prices and higher premiums on credit default swaps (CDS). On the European interbank markets, meanwhile, segmentation deepened. There were also problems with US dollar funding.

... and requires response at the European level

These tensions are not merely a reflection of cross-sector contagion between the public sector and the financial system. High interdependencies within the European financial system are themselves also fostering cross-border contagion. This dimension of the crisis, in particular, requires a coordinated European response. The measures that European policymakers agreed on recently must therefore be rapidly specified and implemented. This also means that the countries affected must meet the commitments that they have made and convince the markets that they are on course to achieve stability. Greek policymakers and society especially must emphatically confirm their country's consolidation course.

Stressed financial system in an environment of high uncertainty and low interest rates

Besides the currently dominant crisis of confidence on the financial markets,² the stability of the international financial system is affected by other factors. The renewed tensions are thus due in part to endogenous mechanisms stemming from within the financial system itself, such as procyclical adjustments of credit standards through margins or haircuts on collateral. Moreover, new market developments such as the increasing use of broad financial market indices as benchmarks for derivatives and exchange-traded funds (ETFs) tend to amplify co-movement within the system. Endogenous processes such as these are among the reasons that the financial system sometimes amplifies, rather than dampens, exogenous shocks. From a financial stability perspective, it is therefore important that suitable regulatory measures be deployed to combat such shock-amplifying factors within the financial system.

Additional risks as a result of endogenous mechanisms, ...

The international financial system has, moreover, not yet fully dealt with problematic legacy portfolios. In particular, exposures to commercial real estate in those countries that previously experienced a property boom could come under renewed pressure after the tensions had eased for a protracted period, as could structured financial products. It is important that banks pursue balance sheet cleansing rigorously.

... problematic legacy portfolios...

¹ The chapter "Sovereign debt a central risk factor" (see pp 17–28) gives a detailed account of the background and explains the measures taken by policymakers.

² The chapter "International financial system between risk aversion and yield-seeking" (see pp 29–42) analyses the main driving factors and the associated risks.

Box 1.1

STABILITY SITUATION IN THE GERMAN FINANCIAL SYSTEM IN 2011**Factors that ...****... strain the stability situation**

- Widening of sovereign debt crisis, tensions spread to Italy and Spain
- Contagion effects on banks increased, loss of confidence in European banking system
- Funding liquidity and market liquidity impaired; procyclical and shock-amplifying behaviour magnifies market swings
- High frequency trading continues to rise on major exchanges and can create “ghost liquidity”
- Basis, counterparty and liquidity risks from exchange-traded funds
- Banks’ legacy problems resulting from commercial real estate and structured securities not yet fully dealt with
- Loss of momentum in industrialised countries’ economies
- Danger that persistent low-interest rate environment may cause new exaggerations in the medium term

... alleviate the stability situation

- Improved capitalisation in German banking system, leverage ratio lower
- Earnings situation of German banks stable so far, interest margin up, loss provisions down
- Better quality of domestic credit
- Customer deposits – a stable source of funding in German banking system – continue to rise
- German life insurance companies increase investment income and reduce current return
- Progress in balance sheet cleansing through transfer of impaired exposures to resolution agencies
- European policymakers initiate capitalisation and guarantees for longer-term bank liabilities for big European banks

Recommendations ...**... to market participants**

- Further strengthen capitalisation in order to counter loss of confidence in banking sector
- Systemically important financial institutions: develop restructuring plans and simplify winding-up process
- Establish code of conduct for high frequency trading
- Increase transparency of exchange-traded funds and develop common standards
- Align remuneration in financial sector with long-term earnings, especially in investment banking
- Strengthen insurers’ risk management in terms of single-premium capital redemption operations

... to policymakers

- Pursue sustainable fiscal policy, implement supportive structural reforms
- Strengthen framework for sound national fiscal policies in Europe
- Respect clear separation of monetary and fiscal policy
- Increase transparency in financial system: improve consistency and granularity of flow-of-funds statistics
- Rigorously implement new internationally harmonised reporting requirements for the shadow banking system
- Apply international standards regarding insolvency regimes for banks
- Stipulate the use of central counterparties for OTC derivatives business and establish trade repositories, also for commodities markets
- Ensure national competence for use and dosage of macroprudential instruments

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... and persistently low interest rates

The international financial system continues to be characterised by ongoing low interest rates and high global liquidity. The low-interest rate environment harbours medium and longer-term risks such as excessive leveraging and intensive maturity transformation. However, large international banks have only just undergone extensive deleveraging. To better capture the activities of hedge funds, it is important that flow-of-funds statistics beyond Europe be made more internationally consistent and granular. In addition, recommendations for internationally harmonised reporting requirements for hedge funds must be implemented.

Risks as a result of capital flows to emerging economies...

Persistently low interest rates are also contributing to the build-up of global financial imbalances in the context of an international financial system that has a very short-term focus and that is able to shift funds among various asset classes rapidly. A number of emerging market economies therefore face the risk, on the one hand, that high short-term capital inflows could drive asset prices above their fundamentally justified level. On the other hand, past experience shows that capital flows may dry up abruptly and even reverse rapidly. This is borne out by the fact that the capital inflows of the past few years were, to a large extent, driven by volatile components such as portfolio investment and short-term bank loans. The risks to German banks from credit and asset price bubbles as a direct result of external assets in the respective countries are limited. However, if a bubble in a major emerging market economy were to burst, contagion effects mean that this could, given the high global interconnectedness, have an indirect knock-on effect on the German financial system.

... and to commodities markets

The search for yield has increasingly caused large amounts of funds to be channelled into the commodities markets. The term “financialisation” describes this process. Large international banks play a central role on the commodities markets both as proprietary traders and as market makers in over-the-counter (OTC) trading. Concentration risks are fairly pronounced. In future, however, smaller banks and insurance corporations could also seek to enter the commodities markets. It is questionable whether newcomers with little previous experience of such investing have in place risk management procedures for safe engagement in what is a highly volatile market segment. The risk management of banks and insurers active on the commodities markets must therefore be monitored also in Germany, where financial institutions’ exposure is still fairly low.

Strengthened German financial system ...

The German financial system has become more resilient over the past two years. But there are clouds on the horizon. These include the haircut on some claims against the Greek state, higher funding costs and the deterioration in the economic outlook. This could test the resilience of the German financial system.³

German financial system more resilient

The earnings situation of the major German banks with an international focus⁴ has been stable since the spring of 2009. The interest margin was 0.83% on an annualised basis in

Earnings situation stable to date

³ The chapter “German financial system between heightened resilience and growing contagion risk” (see pp 43–63) analyses the progress made as well as remaining weaknesses.

⁴ The analysis comprises 13 major German banks with an international focus which offloaded no assets to resolution agencies in the period under review.

the second quarter of 2011 – well above its long-term average. Moreover, risk provisioning has declined further. The group of major German banks with an international focus reported the lowest risk provisioning figure in three years in the second quarter of 2011, at €636 million. The sharp economic upturn has obviously paved the way for higher earnings and improved credit quality. However, the earnings outlook has deteriorated again.

Capitalisation raised, leverage reduced

The downward trend in leverage remains intact for the major German banks with an international focus. Their leverage, measured as total assets to tier 1 capital, dropped to 33 by mid-2011. At the same time, these banks have raised their capital levels, and their average tier 1 capital ratio under the currently applicable Basel II rules has risen to 13.1%. In the spring of 2008, leverage still stood at 43, and the tier 1 capital ratio was 8.3%. Moreover, many of these banks have improved the quality of their tier 1 capital.

Market risks virtually unchanged

Market risk exposures of German banks as a whole were little changed on the year as at the cut-off date for the calculation (end-March 2011) and remain manageable overall. Interest rate risk is distributed unevenly, however. In particular, small and medium-sized banks such as savings banks and credit cooperatives conduct maturity transformation on a large scale. German banks are much less exposed to the risk of falling share prices nowadays than before the financial crisis. Vulnerability towards heightened volatility in interest rates, share prices and exchange rates remains low.

Funding less susceptible

Funding vulnerabilities at German banks are declining as the percentage of customer de-

posits in liabilities is rising. As at mid-2011, it was almost 44%, compared with just 37% before the financial crisis. The refinancing gap in US dollars has also been reduced significantly. Having totalled more than US\$200 billion at its peak, it stood at just US\$61 billion at the end of June 2011.

German insurance companies benefited from the buoyant economic setting and in 2010 raised both their premium revenue and investment income, in some cases significantly. Premium growth was mainly driven by single-premium income from life insurance business, which rose by 34%. German life insurance corporations raised their net return on investment by 9 basis points to 4.27% in 2010. At the same time, they reduced policyholders' profit participation by 11 basis points to 4.08%. German life insurers are, it seems, responding to the challenge posed by persistently low interest rates.

Life insurers respond to low-interest rate environment

... faces new challenges

Further progress has been made in cleansing German banks' balance sheets, though this process is not yet complete; problematic legacy assets remain. In some instances, these relate to credit claims on the commercial real estate sector. As at year-end 2010, major German banks with an international focus held just under €274 billion worth of such assets, of which foreign business accounted for roughly half.

Bank balance sheets face ongoing strain...

These banks also still have substantial exposures, totalling €150 billion, to structured products. As at end-June 2011, residential

... from structured products

mortgage backed securities (RMBS) were still the largest single item within this portfolio, with a book value of some €67 billion. Commercial mortgage backed securities (CMBS) accounted for just under €16 billion, and various forms of collateralised debt obligations (CDOs) roughly €33 billion. The overall volume of these portfolios has declined by a substantial €55 billion since the first quarter of 2010. However, this was due less to maturities and redemptions (roughly €20 billion) than to transfers of impaired exposures to resolution agencies (around €21 billion).

German banks with sizeable exposure to Italy and Spain

The further evolution of the European sovereign debt crisis will determine the extent to which bank balances face new challenges going forward. German banks' balance sheet exposure to debtors in Greece amounted to just under €28 billion in total as at end-June 2011. It has fallen recently. The immediate problems that this entails can be regarded as manageable given German credit institutions' increased resilience. Their balance sheet exposure to debtors in Italy and Spain is much larger than their exposure to the programme countries. Claims on the Italian government sector run to just under €42 billion, while those on Italian banks amount to €54 billion. Looking at Spain, exposure to the government sector adds up to €23 billion and that to banks to €47 billion. German insurers' exposure to Greece is only moderate, with claims totalling just over €2 billion. Their aggregate exposure to general government in Italy and Spain is just under €15 billion.

Restoring confidence

The European banking system is confronted with a considerable loss of confidence. Countering this loss of confidence possibly constitutes the greatest challenge currently facing the financial industry. The European Council agreed on 26 October 2011 to recapitalise the European banking system in a concerted move and to underwrite longer-term bank liabilities.

Crisis of confidence in the European banking system

To determine their capital requirements, 70 large European banks that were included in the European Banking Authority (EBA) survey at the beginning of October are to mark to market their entire holdings of bonds issued by and loans granted to countries in the European Economic Area (EEA). This will eliminate market participants' uncertainty about hidden losses and thus, ultimately, institutions' creditworthiness. After marking government bonds to market, the banks in question must, for a limited period, have a core tier 1 capital ratio of 9%.⁵ Based on this more stringent capital standard, European credit institutions' capital requirements are currently €106.4 billion; of that total, German banks account for €5.2 billion. Taking into consideration the impact of the introduction of the Capital Requirements Directive CRD III on individual institutions and earnings performance in the third quarter of 2011, some German banks are likely to see their capital requirements increase.

Higher capital buffers agreed

⁵ Core tier 1 capital must not be confused with the currently applicable supervisory definition of tier 1 capital. Core tier 1 capital includes only components with the highest loss absorbency capacity.

Further improving the regulatory framework

Regulatory framework being enhanced through...

To safeguard financial stability in the longer term, the institutional and regulatory framework is being further developed.⁶ Three key aspects are determining the agenda. First, the risks arising from systemically important financial institutions (SIFIs) must be curbed. Second, liquidity will be the predominant issue in banking regulation over the years to come. Third, the permanent push for greater transparency and stable infrastructures is to be continued.

...insolvency regime for financial institutions

A central task of the reform agenda is dealing with SIFIs. They, too, must be able to exit the market without jeopardising the financial system in the event of strategic mistakes or inefficiencies. The adoption of dedicated insolvency rules for the financial sector makes it possible to force ailing financial institutions to be restructured or wound up, irrespective of their size. At the national level, progress on this issue has already been made. In Germany, a Bank Restructuring Act (*Restrukturierungsgesetz*) entered into force at the beginning of 2011. The respective national insolvency regimes must be harmonised at the international level. This is one of the reasons the Financial Stability Board (FSB), in its SIFI framework, has agreed on requirements to be met by national resolution regimes.

Liquidity rules for banks

Liquidity will be the dominant issue in banking regulation over the years to come. In microprudential terms, ie at the single-entity level, the objective is to ensure that no individual bank assumes excessive liquidity risk. At the same time, macroprudential aspects need to

be taken into consideration, for instance the consequences for market liquidity and funding liquidity, especially in stress situations. In the sensitive area of liquidity, in particular, changes to the regulatory regime may produce unintended side-effects. For example, the new risk-based Solvency II regime for the European insurance industry is likely to have a perceptible impact on banks' funding options.

Creating transparency and ensuring robust infrastructures are perennial themes in macroprudential policy. The constant stream of innovations in intermediaries' business models, in products and instruments as well as in trading practices frequently make identifying risks to financial stability difficult and pose new challenges to the financial infrastructure. Financial stability requires sufficient transparency, sound infrastructures and constantly adapting prudential supervision along the entire process chain from front to back office.

Transparency as a perennial theme

One key approach is to migrate OTC derivatives trading to organised trading platforms. Technological innovations likewise represent a challenge to the stability of trading infrastructures. For instance, the percentage of computer-driven high frequency trading (HFT) is increasing rapidly, particularly in US and European equity trading. Financial stability may also be jeopardised in the back office, ie when trades are cleared and settled. The G20 group of countries have agreed to make the use of central counterparties (CCPs) obligatory for OTC derivatives. Extending this require-

Sound infrastructures for front and back office

⁶ The chapter "Regulatory framework to contain systemic risks" (see pp 65–82) outlines the most important areas in which the institutional and regulatory framework needs developing.

ment to other financial markets and instruments is worth considering.

Macroprudential oversight needs to be made fully operational

Monitor systemic stability

One of the key lessons to be learned from the crisis relates to the prudential supervisory approach. Alongside the microprudential regulation and supervision of individual banks and their resilience, macroprudential oversight must look at the big picture in terms of the stability of the financial system as a whole. A mandate for macroprudential oversight not only relates to banks but also extends to insurers, markets and financial infrastructures. Macroprudential oversight must, moreover, be closely intertwined with microprudential supervision.

Macroprudential policy needs to be made fully operational. An international standard is emerging for defining and allocating national macroprudential mandates. In Europe, national macroprudential policies must be integrated into a European framework. It would thus be desirable to harmonise macroprudential instruments at the European level in order to avoid jeopardising the single European financial market and to prevent national protectionism. The European Systemic Risk Board (ESRB) plays a central role in coordinating macroprudential policy. At the same time, decisions on the use and dosage of macroprudential instruments should be the prerogative of national authorities to allow them to take appropriate action in response to any threat to the stability of their own financial system.

National mandates must be embedded in European framework

Sovereign debt a central risk factor

High sovereign debt currently poses the greatest threat to financial stability; some euro-area countries are at the centre of this problem. The crisis widened over the summer months, with tensions spreading to the markets for Spanish and Italian government bonds. In addition, there were cross-border contagion effects on large complex financial institutions (LCFIs) with high exposures to or close links with the stressed countries. The European banking sector currently has to contend with a substantial loss of confidence. This crisis of confidence requires solutions not only in terms of public finances but also at bank level. European political leaders have responded by adopting a package of measures designed to strengthen the monitoring of budgetary discipline and deepen economic union, which also envisages a higher capitalisation of large European banks and the provision of government guarantees for long-term bank liabilities in order to safeguard access to the capital markets. Nonetheless, when industrial countries' government bonds lose their "risk-free" status, this has far-reaching consequences.

High sovereign debt as a global problem

The risks to financial stability arising from high levels of sovereign debt in many industrial countries have continued to increase over the course of this year. In the euro area, the debt crisis has widened and worsened. The budget dispute and subsequent downgrading of the United States by a credit rating agency underscored the country's fiscal problems; in Japan, a politically induced sovereign default began to look possible in the summer.

Broadening of the crisis in the euro area...

Undesirable fiscal developments were a key factor in the growing volatility of many asset prices and investors' widespread flight to assets considered safe havens. The financial inflows to the United States and Japan – in keeping with their traditional role as safe havens – gives these countries no cause for complacency. Their debt levels, deficits and long-term fiscal consolidation needs are actually even larger than in some of the euro-area countries singled out as being financially vulnerable (see Table 2.1).¹ In addition, both the United States and, in particular, Japan face above-average gross financing needs in 2012 and 2013 in an international comparison. This is due not only to their high deficit and debt levels but also to the relatively short maturity profile of their debt. There may be substantial potential for disruption in these countries in the medium term, with far-reaching conse-

... and fiscal vulnerabilities in USA and Japan

¹ See International Monetary Fund (2011a), p 7.

Table 2.1

LONG-TERM FISCAL ADJUSTMENT NEEDS IN SELECTED G20 INDUSTRIAL COUNTRIES*

As % of gross domestic product (GDP)

Country/ group of countries	Gross debt 2010	Cyclically adjusted primary balance		Neces- sary fiscal adjust- ment ² 2010 to 2020
		Actual 2010	Required ¹ 2020 to 2030	
France	82.4	- 3.1	3.1	6.3
Germany	84.0	- 0.4	2.0	2.3
Italy	119.0	1.2	4.3	3.1
Japan	220.0	- 6.6	7.0	13.6
United States	94.4	- 5.4	5.4	10.8
Developed G20 countries	104.4	- 4.1	4.3	8.4

Source: International Monetary Fund (2011a), p 30. —

* The table displays the results of an IMF model calculation. — **1** Annual primary balance needed between 2020 and 2030 to bring the gross debt ratio down to 60% (80% in Japan) of GDP in 2030. — **2** Adjustment to primary balance between 2010 and 2020 needed to achieve this.

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quences for global interest rate and exchange rate developments.

European sovereign debt crisis widens

*Three countries
receive
assistance*

Some individual euro-area countries are at the centre of the crisis. After Greece (May 2010), both Ireland (November 2010) and Portugal (May 2011) have both found themselves in

need of European and international assistance owing to sharp rises in their risk premiums. In early summer, it also became clear that Greece's scheduled return to the capital markets in 2013 would not be feasible.

Political leaders adopt support measures

The euro-area heads of state and government and EU institutions responded to the growing tensions in the financial markets on 21 July 2011 (see Box 2.1 on page 19) by taking measures that included, in particular, a second support package for Greece.² In addition, the European Financial Stability Facility (EFSF) and the future European Stability Mechanism (ESM) were granted further powers.

*Decisions of
21 July 2011*

Nonetheless, the tensions in the markets worsened at the end of July 2011. Market indicators such as short-term yields and credit default swap premiums suggested that investors were not ruling out subsequent private sector bail-ins for other countries, too.³ In addition, there were repeated significant delays and failures in implementing the adjustment programme in Greece, causing the markets to question Greece's ability to fulfil the conditions attached to the financial assistance. At the same time, in many industrial countries a growing body of data pointed to a marked economic slowdown. Consequently, stock prices fell sharply across the world, with bank shares tumbling particularly (see Chart 2.1).

*Tensions
subsequently
continued to
spread, ...*

² See Deutsche Bundesbank, (2011), pp 62–65.

³ See also International Monetary Fund (2011b), p 13.

Box 2.1

IMPORTANT DECISIONS MADE BY THE HEADS OF STATE OR GOVERNMENT OF THE EURO AREA ON 21 JULY AND 26 OCTOBER 2011

The 21 July 2011 summit adopted a second support package for Greece, more favourable conditions for future aid loans to the programme countries and an expansion of the powers of the European Financial Stability Facility (EFSF) and the future European Stability Mechanism (ESM).

Greece was granted a second support package totalling €109 billion, in addition to the €110 billion approved in May 2010. The International Monetary Fund (IMF) was called upon to contribute to the financing of the new programme. The private sector voluntarily offered to extend the duration of maturing bonds at a calculated loss of 21%. The term of future EFSF loans to Greece was extended from 15 to 30 years and their interest rates reduced. The interest rates and loan terms agreed for Greece also apply to Portugal and Ireland.

The EFSF and the future ESM will be authorised to grant precautionary credit lines, finance the recapitalisation of financial institutions through lending to governments – including those of non-programme countries – and intervene in secondary markets. The euro-area countries have now ratified this instrument expansion – together with the measures agreed in March 2011 to increase the EFSF's effective lending volume to €440 billion and to grant the EFSF the authority to buy euro-area member states' bonds on the primary market.

On 26 October 2011, the heads of state or government of the euro area agreed on a host of additional measures.

An arrangement was made to ensure the sustainability of Greece's sovereign debt, replacing the support package approved for Greece in July.

One contribution is in the form of private sector involvement, whereby private bondholders will voluntarily exchange bonds at a discount of 50% of the nominal value. The bond exchange will be implemented at the beginning of 2012. Euro-area countries stand ready to contribute up to €30 billion in addition to the private sector involvement. This would make up to €100 billion in additional programme funds available for Greece by 2014.

The remaining euro-area member states have also pledged to translate into national law, by the end of 2012, provisions regarding a structurally balanced budget. Italy, in particular, has made commitments concerning structural reforms.

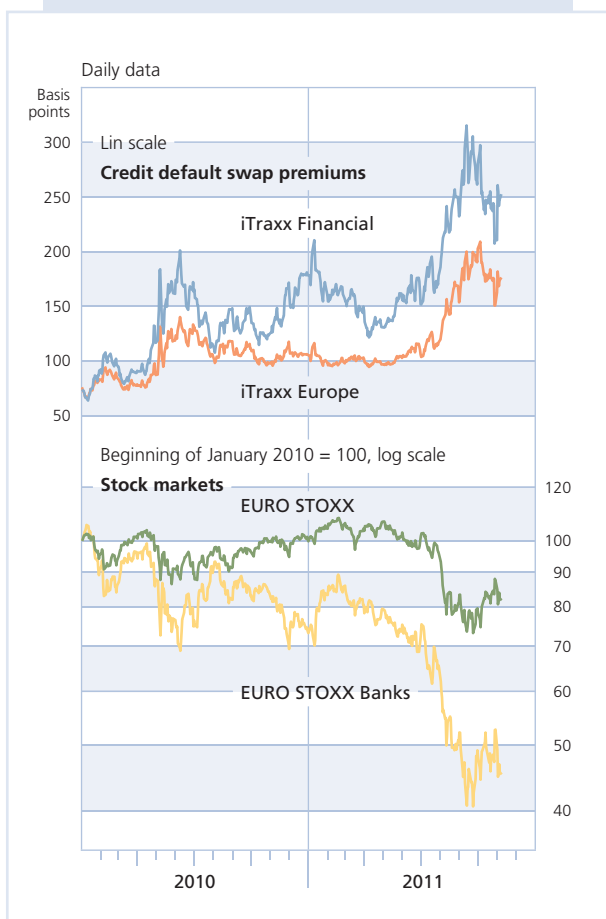
The EFSF resources will be leveraged using two basic options (risk insurance and/or a special-purpose vehicle) without extending the underlying guarantees. The leveraging factor is expected to be up to 4 or 5.

The longer-term financing of banks should be secured, if need be, with government guarantees for bank liabilities. From July 2012, large banks in the EU will be required to hold a temporarily limited minimum of at least 9% of core tier 1 capital (see Box 4.2 on page 54).

Further steps to strengthen economic and fiscal policy coordination and surveillance in the euro area were also announced. Specific measures will consolidate the economic governance of the euro. Furthermore, the President of the European Council was mandated, in cooperation with the Presidents of the European Commission and the Eurogroup, to identify additional steps to strengthen the euro area, including those that require limited Treaty amendments.

Chart 2.1

INDICATORS FOR THE EUROPEAN FINANCIAL SECTOR



Sources: Bloomberg and Markit.
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programme countries recorded all-time highs. At the same time, yields on the bonds of top-rated euro-area countries fell (see Chart 2.2). The premiums on credit default swaps for banks topped the peaks recorded at the height of the financial crisis in autumn 2008. In addition, the tensions spilled over from the government bond markets to other key financial market segments, such as the interbank markets.

Against this backdrop, the euro-area heads of state and government adopted a second package of measures on 26 October 2011, which contained a second support programme for Greece modifying the decisions made in July. This programme envisages, among other measures, a perceptibly greater haircut on private sector claims as a contribution to safeguarding the sustainability of Greek public finances. Furthermore, the leaders at the summit agreed in principle on methods to expand the EFSF's capacity. The European Council had previously agreed on a package designed to restore confidence in the banking sector, consisting of guarantees to ensure access to longer-term financing and a requirement for 70 European banks,⁴ including 13 German institutions, to temporarily build up a higher core tier 1 capital ratio of 9% after each institution has marked its holdings of EEA government bonds to market. This capital target will have to be attained by 30 June 2012.

*Decisions of
26 October
2011*

*... affecting
Italy and Spain*

Structural weaknesses caused assessments of the longer-term outlook for growth, and thus for fiscal sustainability, in the large euro-area countries of southern Europe to grow increasingly pessimistic (see Table 2.2). This caused the tensions to spread to the markets for Spanish and Italian government bonds. The risk premiums and yields on these countries' bonds marked new highs since their accession to the euro area, while the three Troika

⁴ These are the participants in the EBA stress test in July 2011 excluding some smaller banks with a national focus.

Table 2.2

VULNERABILITIES IN SELECTED EURO-AREA COUNTRIES

As % of nominal gross domestic product (GDP)

Country/ currency area	General government deficit		Primary balance		Gross general government debt		General government external debt	Interest pay- ments on general govern- ment debt		Current account balance		Memo item: Real GDP, year-on-year percentage change	
	2011	2012	2011	2012	2011	2012	2011 Q2	2011	2012	2011	2012	2011	2012
Greece	8.0	6.9	-1.3	0.8	166	189	82.9	6.8	8.0	-8.4	-6.7	-5.0	-2.0
Portugal	5.9	4.5	-1.9	0.1	106	112	56.3	4.2	4.8	-8.6	-6.4	-2.2	-1.8
Ireland	10.3	8.6	-6.8	-4.4	109	115	63.9	3.8	4.8	+1.8	+1.9	+0.4	+1.5
Spain	6.1	5.2	-4.4	-3.1	67	70	29.5	2.2	2.5	-3.8	-3.1	+0.8	+1.1
Italy	4.0	2.4	0.5	2.6	121	121	53.1	4.8	5.1	-3.5	-3.0	+0.6	+0.3
Euro area	4.1	3.1	-1.5	-0.3	89	90	25.6	3.0	3.2	+0.1	+0.4	+1.6	+1.1

Sources: forecasts by IMF (September 2011) and European Commission, Bundesbank calculations.

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ECB provides additional liquidity

*ECB's non-stand-
ard measures
expanded*

In view of the renewed frictions in the money markets, the Governing Council of the European Central Bank (ECB) adopted non-standard liquidity-providing measures in early August and early October 2011. Full allotment in the main refinancing operations is to be maintained as long as necessary, and at least until early July 2012. The three-month longer-term refinancing operations (LTROs) in this period are also to be conducted with full allotment. In addition, longer-term liquidity is to be provided via three LTROs of differing maturity (6, 12 and 13 months). In October, the Governing Council also decided to launch a new covered bond purchase programme with an aggregate volume of €40 billion. As the sov-

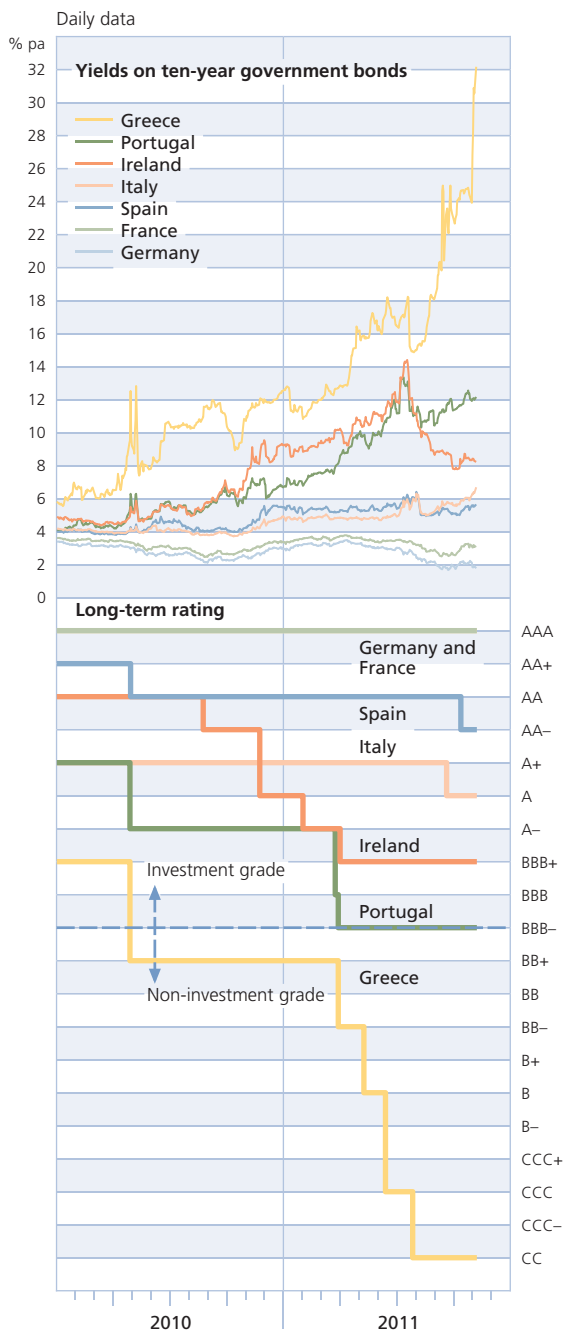
ereign debt crisis spilled over to other euro-area countries, the Governing Council also reactivated its Securities Markets Programme at the beginning of August 2011.

LCFIs in the euro area also experienced difficulties in obtaining US dollar funding. US money market funds in particular have become increasingly selective in their provision of finance to European credit institutions over the course of 2011. Most European banks had to resort to the more costly private swap market or collateralised repo transactions to cover their US dollar funding needs. Furthermore, the ECB stepped in to ease any possible tensions through a swap agreement with the Federal Reserve. In mid-September 2011, the Governing Council of the ECB decided, in addition

*US dollar
liquidity
provided*

Chart 2.2

YIELDS AND CREDIT RATINGS FOR SELECTED EURO-AREA COUNTRIES



Sources: Bloomberg and S&P.
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to the ongoing weekly operations and in coordination with the Federal Reserve and other major central banks, to conduct three US dollar liquidity-providing operations with full allotment and a maturity of approximately three months extending beyond the end of the year.

High debt levels as a risk factor

High debt levels are problematic above all for a country's solvency, since they make countries fundamentally vulnerable to longer-term interest rate risk and negative growth shocks. However, it must be borne in mind that the average maturity on sovereign debt in the euro-area countries is six years. The direct burden on public budgets resulting from a limited rise in refinancing rates is therefore entirely manageable. By contrast, market interventions that aim to curb rising yields harbour the danger of undermining the disciplining effect of higher risk premiums.

Greater fiscal and economic vulnerabilities...

At present, high debt levels in one country can additionally trigger substantial short-term contagion effects on other countries' bond markets. The implementation of the announced additional consolidation measures in France, Italy and Spain will probably mean that the capital markets will be tapped to a somewhat lesser extent than originally thought. Even so, government refinancing needs will remain comparatively high in 2012 and 2013 (see Chart 2.3), meaning that credible consolidation and reform efforts will be essential in all euro-area countries, hinging on a resolute implementation of commitments made at euro-area level. Applying such policies would also help to create a capital market

...and cross-border contagion effects

setting that would allow two of the three programme countries – Ireland and Portugal – to gradually return to the markets from 2013 onwards. The Eurogroup’s decision in June 2011 not to apply the future ESM’s preferred creditor status to countries that were undergoing an adjustment programme when the ESM treaty was signed should be viewed in this light. This allayed fears that such a provision might deter private investors from purchasing these countries’ bonds.⁵

Negative cross-sector feedback loop between government and banking sector

Banks down-graded

Governments and banks are mutually and closely interlinked via various channels of contagion. There is thus a close connection between the credit default swap premiums of a country’s government and those of its banking sector (see Chart 2.4). The financial crisis has thrown this interdependency into sharp relief: since August 2007, two-thirds of domestic banks have had their credit ratings lowered within the six months following a sovereign downgrade.⁶

Earnings and funding costs affected

Sovereign risk affects both sides of banks’ balance sheets. On the asset side, their holdings of bonds of countries hit by the debt crisis mean that write-downs are required in the trading book. A far more serious long-term concern is that, in the wake of the crisis, investors may globally include aggregate exposure to all sovereign borrowers in their credit

Chart 2.3

FUNDING NEEDS* OF SELECTED EURO-AREA COUNTRIES

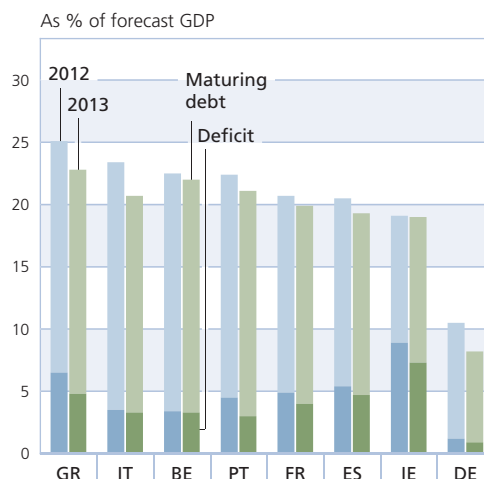
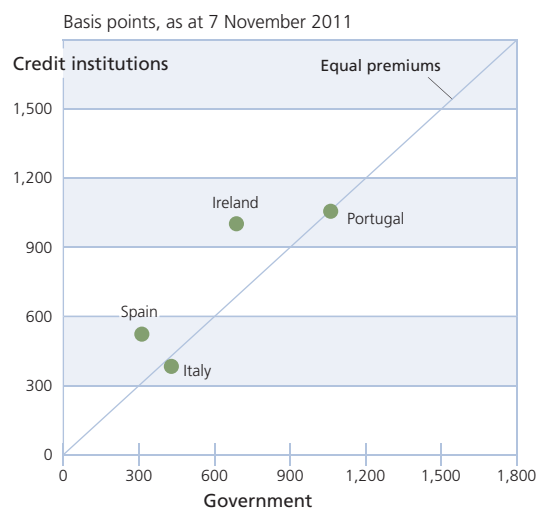


Chart 2.4

CREDIT DEFAULT SWAP PREMIUMS OF SELECTED EURO-AREA COUNTRIES**



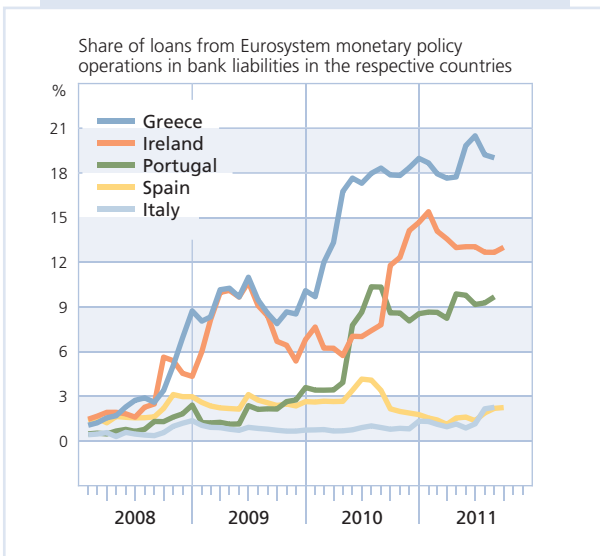
Sources: IMF forecasts, Markit and Bundesbank calculations. — * It is assumed that short-term debt securities maturing in 2011 and 2012 are replaced by bonds with the same maturity. Deficits are funded such that the maturity structure in place at the end of 2010 is maintained. — ** Figures for Greece in basis points: government 4,495; credit institutions 2,285.

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⁵ As a matter of policy, the IMF has preferred creditor status.
⁶ See Committee on the Global Financial System (2011), p 21.

Chart 2.5

RECOURSE TO CENTRAL BANK FACILITIES



Sources: national central banks and Bundesbank calculations.

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assessments. On the liability side, domestic banks' funding costs increase because of their close correlation with their country's sovereign risk premium. Increased sovereign risk is also reflected in larger haircuts on the government bonds of stressed countries when banks post these as collateral to obtain funding on the international financial markets or from the central bank. It has now become extremely difficult to use the programme countries' government bonds as collateral on the markets.⁷ In addition, in times when capital market funding is relatively hard to come by, competition between public sector borrowers and other borrowers becomes fiercer. Alongside these factors, banks' earnings in the stressed euro-area countries are under additional strain from the deteriorating growth outlook and

the higher default rate among enterprises and households that this is likely to entail.

Banks domiciled in the three programme countries have only very limited access to the interbank money market and are, in reality, cut off from longer-term refinancing operations. Institutions from these countries have been unable to conduct any significant issues of long-term bank bonds since mid-2010. Greek and Irish banks have faced the additional difficulty of domestic and foreign customers withdrawing their deposits. Domestic customer deposits in Greece fell by 21% between the end of 2009 and August 2011. In Ireland, the deposits of domestic customers have seen a 23% decline.⁸ However, a trend towards stabilisation has recently been emerging in Ireland. Eurosystem measures have temporarily eased the problems caused by a market withdrawal of liquidity in the troubled banking systems. Consequently, dependency on liquidity supplied by the Eurosystem has increased sharply (see Chart 2.5).

Customers withdrawing deposits

Independently of the decisions made at the European level, measures were taken in various euro-area countries to combat the major confidence problems in their national banking sectors. In early 2011, Ireland performed national stress tests which aimed to calculate the recapitalisation needs of credit institutions that were deemed viable and to boost confidence. Furthermore, the three programme countries raised the target for core tier 1 capital to a minimum of 10%. In the event of

Bank restructuring underway

⁷ However, clearing houses have recently reported an initial lowering in haircuts on Irish government bonds.

⁸ Sub-aggregate of Irish banks participating in the Irish government's Eligible Liabilities Guarantee (ELG) Scheme.

banks being unable to obtain capital on the market, funds to support the banking sector can be made available through the adjustment programmes. One positive development is that the process of bank restructuring involving foreign capital is now underway in all three programme countries. Spain has likewise taken a number of measures to address the problems in its banking system.

Long-term funding sources could run dry

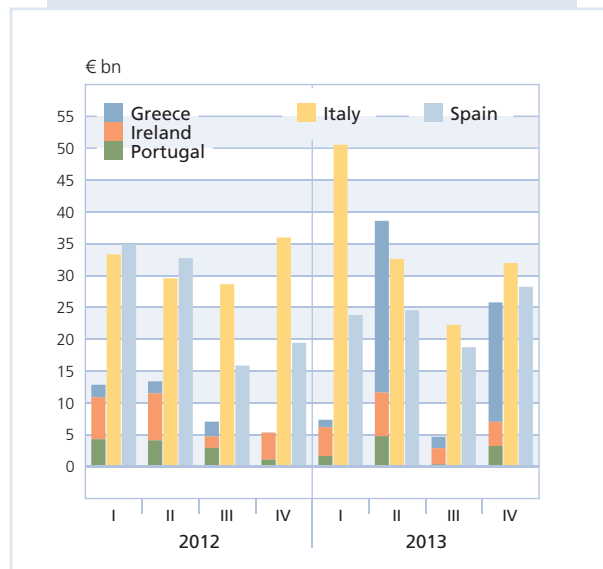
One key risk for the euro-area banking sectors – not just in the programme countries – is that long-term sources of funding may dry up. As the tensions in the government bond segment came to a head in late summer 2011, the pricing terms of bank bonds continued to worsen and market demand remained low. In the short term, one positive factor is that most institutions used the favourable financing conditions up to mid-year to front-load their funding needs for the whole of 2011. However, such buffers could soon be eroded at many institutions if poor market conditions persist and in view of the large roll-over financing requirements in 2012 (see Chart 2.6). The capacity to substitute unsecured bank debt with covered bank bonds is likewise limited by the asset pool available and the danger of discriminating against unsecured creditors. Furthermore, the fierce competition for deposits from the non-financial sectors is weighing on margins.

Feedback effects on economic developments possible

Against this backdrop, the growing divergence in bank refinancing conditions could be reinforced – both across countries and among institutions or different categories of institutions within individual countries. In a negative scenario of continuing tensions in the funding markets, many institutions can be expected to respond by (further) reducing their holdings

Chart 2.6

MATURITIES OF BANK BONDS*



Sources: Bloomberg and Bundesbank calculations. —
* Encompasses maturing money market paper and bonds from a total of 76 large financial institutions.

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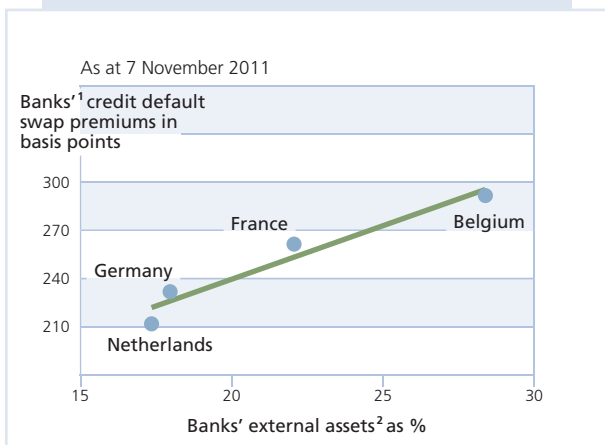
of risky assets or shying away from taking on new credit exposures. This could lead to further negative feedback effects on general economic developments and the fiscal position of the countries concerned.

One strategy that can halt such downward spirals hinges on the realisation that, once they attain a certain magnitude, problems in public finances and the financial sector amplify one another. Strengthening the capital base of financial institutions, as agreed at the EU summit in October, may prove to be an important element of a political strategy for combating the crisis of confidence, with which the additional government guarantees for longer-term bank liabilities can work in complement. However, this makes it all the

Recapitalisation and consolidation

Chart 2.7

CREDIT DEFAULT SWAP PREMIUMS AND EXPOSURE TO SELECTED EURO-AREA COUNTRIES



Sources: BIS, ECB, Markit and Bundesbank calculations. — **1** Banks participating in 2011 EBA stress test; unweighted averages. — **2** Exposure to public borrowers in Greece, Ireland, Italy, Portugal and Spain as a percentage of the corresponding banking system's capital and reserves.

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more important to find a convincing solution to the sovereign debt crisis affecting some European countries.

Sovereign risk spills over to large European banks

Cross-border contagion

Alongside feedback loops between sovereigns and their domestic banking sector, cross-border contagion effects have also emerged in the past few months. The sovereign risk spilled over, either directly via banks' claims on public borrowers in countries deemed vulnerable or indirectly as a result of cross-border interbank relationships. The contagion effects manifested themselves, *inter alia*, in a sharp rise in credit default swap premiums for banks

with a large exposure to the government sector of the programme countries, as well as Italy and Spain (see Chart 2.7). In addition, credit institutions considered to have a particularly large aggregate sovereign exposure to vulnerable countries suffered plunging share prices in some cases.

European banks' cross-border positions in government bonds were revealed in July 2011 in the course of the stress test conducted by the European Banking Authority (EBA). Many market players considered the increased transparency provided by the published data to be the latest EBA stress test's greatest merit. In October 2011, updated EBA calculations were used to quantify the higher capital requirements adopted by the European Council.

First-round effects manageable

Greek banks will be substantially affected by the announced haircut on Greek government bonds. Given the planned bail-in of the private sector in the additional financial assistance for Greece, the confirmation from the euro-area heads of state and government that sufficient funds are to be provided to safeguard the solvency of Greek banks is to be welcomed.

Funds for Greek banks

German financial system has limited risk exposure to programme countries

German banks' balance-sheet exposure to debtors in Greece totalled just under €28 billion at the end of June 2011 (see Table 2.3). It has declined recently. The resulting direct burdens that will arise in the course of the voluntary private sector involvement in safeguarding the sustainability of Greek public finances

Sizeable exposure to Italy and Spain

Table 2.3

BALANCE SHEET EXPOSURE OF GERMAN BANKING SYSTEM* AND INSURERS TO SELECTED COUNTRIES

€ bn; as at June 2011

Country	Borrowers								Total	
	Government sector		Banks and money market funds		Other financial sector		Enterprises/ households			
	Banks	Insurers	Banks	Insurers	Banks	Insurers	Banks	Insurers	Banks	Insurers
Belgium	8.6	4.1	15.5	24.0	1.7	0.1	6.4	0.4	32.3	28.7
France	23.7	7.9	49.8	20.2	7.8	6.2	33.4	2.7	114.7	37.0
Greece	17.5	2.1	0.7	0.0	0.5	0.0	9.2	0.0	27.8	2.1
Ireland	5.9	2.9	4.0	1.0	26.5	3.5	5.6	0.1	42.0	7.3
Italy	42.2	9.0	54.4	29.4	5.0	1.1	16.1	0.7	117.7	40.3
Portugal	6.2	2.1	7.3	0.6	1.2	0.2	6.2	0.2	20.9	3.1
Spain	22.6	5.7	47.4	9.1	20.2	3.2	29.2	0.3	119.5	18.3
United States	80.0	4.8	26.3	4.1	169.5	7.1	107.4	1.4	383.1	17.4

Source: the Deutsche Bundesbank's credit register of loans of €1.5 million or more. — * Definitions based on BIS banking statistics.

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can be considered manageable in view of the increase in German credit institutions' resilience. In terms of volume, German banks have a far larger exposure to borrowers in Italy and Spain than to the Troika programme countries. At the end of June 2011, German credit institutions recorded claims amounting to €42 billion on the Italian government sector; their claims on Italian banks came to €54 billion. In the case of Spain, too, they had a sizeable exposure to public borrowers (€23 billion) and banks (€47 billion).

Insurers little exposed

Although the regional distribution of German insurers' exposure was similar to that of German banks, the volumes of these claims were far smaller. At the end of June 2011, German insurers held claims totalling just over €2 bil-

lion on Greece. Their exposure to general government in Italy and Spain amounted to just under €15 billion in total. German insurers' outstanding cross-border claims on the Italian and Belgian banking sector were particularly high.

Lessons to be learned from the sovereign debt crisis

The sovereign debt crisis has uncovered a number of major unsound developments in the euro-area member states. It has also revealed the risks posed by a highly interconnected European financial market in which member states continue to have autonomous responsibility for national fiscal policy. Thus,

Misguided developments in the euro area

the markets have been financing the build-up of high levels of sovereign debt for a long time without demur and without demanding sufficiently differentiated risk premiums.

Need to keep on consolidating

Now it is time to tackle the root causes of the crisis. For countries with fragile fiscal positions there is no other option than to continue on the path of credible and sustainable consolidation and to take structural measures to reform their labour and services markets in order to bolster competitiveness and growth. In particular, the three Troika programme countries need to rigorously implement the agreed adjustments. This is ultimately the most promising way out of the sovereign debt crisis in the long term.

Consequences for banks

A deterioration in the creditworthiness of government debtors in industrial countries, whose bonds had been deemed virtually risk-free until now, has far-reaching consequences for the financial system. Banks and banking systems with above-average exposures in sovereign debt are then no longer considered to be particularly safe by the market but, rather, as threatened and consequently undercapitalised in relation to the associated risk. At the same time, a stronger capital base – as decided by the European Council – is likely to help to facilitate the refinancing of credit

institutions. In addition, the recently agreed government guarantees for longer-term bank liabilities serve as a complementary measure to this. In the longer run, banks could respond by quantitatively lowering the share of government bonds on their balance sheets and qualitatively restructuring their sovereign portfolios. This would tend to decouple the government sector from the banking sector. In the current market climate, this could also give rise to destabilising effects.

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International financial system between risk aversion and yield-seeking

Besides the currently dominant crisis of confidence on the financial markets, additional factors are influencing the stability of the financial system. Shock-amplifying mechanisms within the financial system are making markets more vulnerable. Moreover, credit institutions have not yet fully dealt with problematic legacy portfolios. In addition, the persistent low-interest rate environment continues to harbour potential dangers. In the medium term, it is fostering yield-seeking by investors involving greater risks, tempting banks to postpone cleansing their balance sheets by deferring repayments and renegotiating the terms of impaired loans, and contributing to the build-up of global financial imbalances. Asset classes such as emerging market economies (EMEs) or commodities are the target of large but volatile financial investments. Owing to the high level of global interconnectedness, the bursting of an asset price bubble could cause an indirect spillover from emerging market economies to the German financial system. German financial institutions' exposure to the commodity markets is still relatively small. However, the risk management practices of banks and insurance companies that are active in these markets need to be monitored, even in Germany. In addition, further improvements in the consistency and the timeliness of information on the activities of hedge funds and exchange-traded funds (ETFs) are needed. |

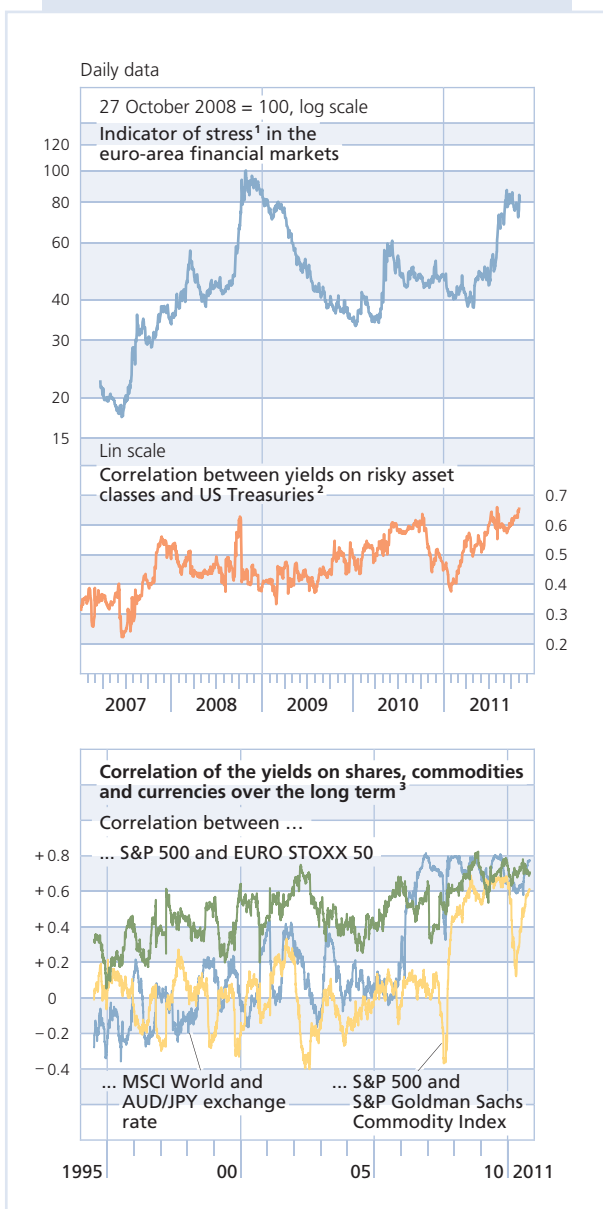
Sovereign debt crisis leads to considerable tension

In the late summer of this year, risks created by high sovereign debt, contagion effects on banks and concerns about the economy led to considerable tensions in all major financial market segments. Even though the central banks of major industrial countries have been keeping key interest rates low and providing copious liquidity, market participants have been reluctant to enter into risk positions. The liquidity situation in key segments, such as the interbank market, has grown worse. Many investors have increased their positions in assets they regard as safe, such as gold and government bonds from countries with a high credit rating. In addition, they have pulled a large amount of money out of shares, corporate bonds and other risky assets. The correlation between the yields on risky assets and those on assets traditionally regarded as largely risk-free, such as US Treasuries, has gone back up since the late summer of this year, in a sign of acute financial market tension. It has now returned to a level similar to that following the collapse of the US investment bank Lehman Brothers in autumn 2008 and at the outbreak of the European sovereign debt crisis in the early summer of 2010 (see Chart 3.1).

*Yields highly
correlated*

Chart 3.1

INDICATORS OF RISK IN THE FINANCIAL SYSTEM



Sources: Bloomberg and Bundesbank calculations. — **1** Based on ten weighted and aggregated time series of credit risk premiums or volatility in selected European market segments. — **2** Correlation of the change in daily yields on ten-year US Treasuries and the first common factor from a principal component analysis of the yields of S&P 500, EURO STOXX 50, MSCI Emerging Markets Index and risk premiums on high-yield corporate bonds from the USA and Europe over a 100-day rolling window. — **3** Correlations of daily yields over a 100-day rolling window.

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High co-movement and swings in prices

In terms of the fundamentals, the high level of co-movement and the amplitude of the price swings in the financial markets can be explained only partly by greater uncertainty and macroeconomic volatility. They are also caused by endogenous mechanisms stemming from within the financial system, which aggravate the situation by, for example, triggering downward spirals in funding and market liquidity. Adjustments to credit conditions such as margins or haircuts on posted collateral, eg in the interbank market or as practised by prime brokers of hedge funds, tend to have a procyclical impact and thus amplify tensions. Automatic pegs to external ratings are similarly procyclical in their impacts. Particularly where sales pressure in individual asset classes is coupled with deleveraging, it can also quickly spill over to other asset classes.¹

Co-movement amplified by endogenous mechanisms,...

However, structural changes such as the increasing globalisation of the financial markets and the growing integration of the world economy have also been causing correlations, and thus co-movement, to tend to increase over a relatively long period of time. For instance, the price relationship between shares issued in different economic areas has been on the rise in the past few decades. Global developments in the equity markets are much more strongly linked with swings in the commodity and foreign exchange markets than just a few years ago, with currency carry trades acting as a key factor (see Chart 3.1).

... global integration, ...

¹ For more on the interplay between liquidity risk and correlation risk see eg V V Acharya and S Schaefer (2006) and N M Boyson et al (2010).

Box 3.1

POSSIBLE STABILITY RISKS FROM EXCHANGE-TRADED FUNDS

The asset class of exchange-traded funds (ETFs)¹ has recently increasingly moved into the sights of national and international supervisory authorities.² The aim of ETFs is to track the performance of a diversified reference portfolio – generally an index – as closely as possible. Over the last few years, inflows to ETFs have far outpaced those to conventional funds. At the end of October 2011, global assets under management in ETFs stood at US\$1,335 billion – with Europe-based funds accounting for around US\$295 billion of this total. Global assets under management have therefore almost doubled since the end of 2008. High demand for ETF products from both institutional and retail investors can be explained by low transaction and administrative costs as well as continuous exchange trading, which usually enables rapid and cheap buying and selling.

A target index can be modelled either physically or synthetically. With physical replication, the manager of an ETF invests in the securities contained in the index on the spot market. Under the synthetic option – which is particularly widespread in Europe – the fund may hold a securities portfolio that deviates considerably from the target index. However, the fund makes arrangements with swap counterparties in order to exchange the performance of this portfolio of securities for that of the reference index.

In practice, both options entail counterparty risk. With physical replication especially, there is an incentive for ETF operators to lend out as large a percentage of their securities as possible. According to industry data, revenue from securities lending typically constitutes around a third of total income.³ In synthetic replication, there are additional counterparty risks vis-à-vis the swap counterparties – often associated banks. On balance, counterparty risks may concentrate if a defaulted counterparty cannot

be replaced by the entry of other swap parties and if (over-)collateralisation is insufficient. In addition, swap partners incur basis risks, which result from the necessary hedging of swap obligations. The financial institutions active in the ETF market must address these risk areas caused by interaction with counterparties by applying sophisticated risk management.

The segment's resilience could be tested if an important counterparty experiences difficulties or if the securities contained in the target index are revalued. Should investors respond by withdrawing considerable funds from the ETF market, the market liquidity of products that are already linked to less liquid asset classes, such as risky corporate bonds or emerging market assets, especially could well dry up rapidly. One reason for possibly higher pressure to sell ETFs is that there are none of the dampening mechanisms that can be found in other sectors (eg hedge fund redemption restrictions). From a financial stability point of view, there is a need to examine closely to what extent banks finance illiquid parts of their portfolios via ETFs associated with them and what exposure these banks may then have to liquidity risks in the event of outflows from ETFs.

The analysis of possible stability threats in connection with ETFs by the competent supervisory authorities is ongoing. Given the rapid growth of this industry, it is particularly important that ETF operators provide investors and regulators with all the relevant information on product features in good time. Visible progress is already being made towards improved transparency. Common standards in the ETF industry, particularly with regard to the publication of detailed information on investment policy and ties with other market participants, would additionally promote the dialogue that has been established with supervisory authorities.

¹ ETFs account for the lion's share – around 90% – of exchange-traded products (ETPs), which include exchange-traded commodities (ETCs) and other exchange-traded vehicles (ETVs). — ² See, for instance, Financial Stability Board

(FSB), Potential financial stability issues arising from recent trends in exchange traded funds (ETFs), April 2011. — ³ See Deutsche Bank, In the ETF labyrinth, where does the thread begin?, 7 July 2011, p 23.

... as well as indexed products and passive trading strategies

A further reason for the pronounced co-movement of the prices of risky assets in the financial system could be the growing importance of derivatives and passive investment strategies, such as the use of exchange-traded funds (ETFs), which are referenced to broad financial market indices (see also Box 3.1 on page 31). Changes in the price of futures on equity indices essentially cause the spot prices of the individual index members to move in the same direction through their signalling function and the trading activities of index arbitrageurs. An environment of high uncertainty can promote trade in indexed products and cause co-movement to increase. Arbitrage strategies in high frequency trading (HFT) can have a similar impact. In addition, safety triggers in automated HFT might lead to a rapid withdrawal of liquidity, thereby intensifying share price falls.²

Risk management facing challenges

From the perspective of financial stability, this co-movement, which is particularly pronounced precisely in periods of stress, is worrying. Although investors with suitably diversified portfolios can use value gains on their safe-haven assets to partly make up for their losses in other assets, endogenous processes such as pronounced "herd behaviour", however, mean that the financial system tends to amplify exogenous shocks rather than to cushion them. Market prices can then decouple from levels justified by the fundamentals, and liquidity in some market segments declines. In such an environment, if investors diversify their funds among several risky asset classes, the risk reduction in the portfolios is only relatively small, often smaller than expected *ex ante*. This poses major challenges to market participants' risk management.

Combat shock-amplifying factors

From a macroprudential perspective, shock-amplifying factors in the financial system must therefore be combated. To this end, it is necessary to reduce automatic pegs to external credit ratings and curb fluctuation in the margin requirements and haircuts in the context of credit conditions. International bodies, with the support of the Bundesbank, are working to address issues such as, for instance, whether minimum margin requirements can effectively dampen the build-up of excessive leverage in the financial system.³

Problematic exposures not yet fully resolved

Problematic exposures under renewed pressure

The volatile market environment and weaker economic outlook in major industrial countries are hindering the progress of banks and other intermediaries in adjusting their balance sheets. It is particularly problematic legacy exposures, especially in (foreign) commercial real estate and structured financial products, that could come under renewed pressure following an extended period of easing. In addition, the prospects for enterprises active on the capital markets and commercial real estate projects to refinance themselves without hindrance depend in no small part on the financial markets' absorbency, which recently suffered intermittent disruptions.

² For more on risks in connection with high frequency trading see Box 5.1 on pp 74–75.

³ See eg Committee on the Global Financial System (2010).

High funding needs in the corporate sector and for commercial real estate

Non-financial corporations as a stabilising factor

With their high profitability, comfortable cash reserves, moderate debt and thus low default rates, large international non-financial corporations helped stabilise the financial system throughout the reporting period. Supported by extensive refinancing activity in 2010 and 2011, the short-term funding needs of European and US firms active in the capital market have declined significantly. The fall in market absorbency and the deterioration in the terms on the issuing markets have therefore not yet posed any acute challenges to most firms. However, in 2013 and 2014 in particular, a larger share of risky corporate bonds and syndicated large loans will be maturing than on a multi-year average (see Chart 3.2).

Further burdens caused by commercial real estate ...

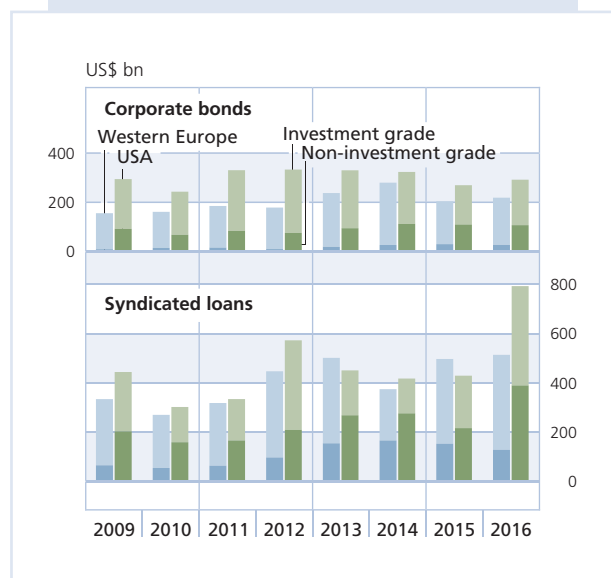
For major German banks with an international focus, commercial real estate funding is a significant line of business, accounting for just under €274 billion and some 7% of total assets at end-2010.⁴ Roughly half of claims are on non-residents (see Chart 3.3). Although the German commercial real estate market has benefited throughout the reporting period from the favourable developments in the economy and positive employment growth, the outlook for a considerable and rapid recovery in the commercial real estate markets of those countries that have sustained significant price corrections in the past few years is once again growing gloomier owing to rising uncertainty about future economic activity.

... and their securitisation

Against this background, the considerable volumes of loans⁵ and the claims securitised in the form of commercial mortgage-backed

Chart 3.2

MATURITIES IN THE CORPORATE SECTOR



Source: Dealogic.

DEUTSCHE BUNDESBANK

securities (CMBS), which will be maturing in the coming years, could put lenders under additional strain. They may have to be refinanced in an environment in which banks have tightened their credit standards and resources from alternative funding channels are limited. Issuance volumes, especially in the European securitisation market, are recovering only tentatively.

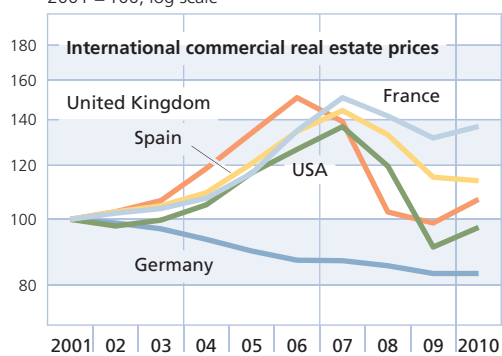
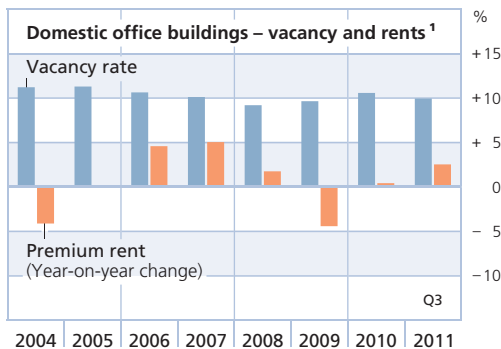
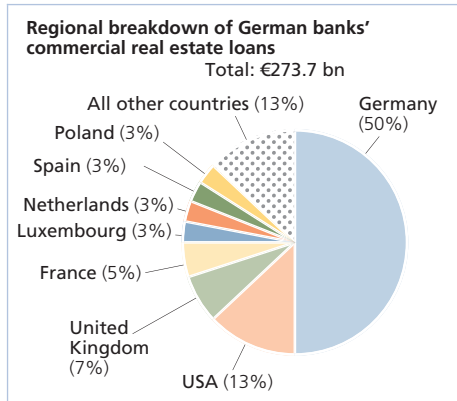
⁴ See the reports on exposure at default (EaD) of the twelve German banks participating in the 2011 EBA stress test (http://www.bundesbank.de/bankenaufsicht/bankenaufsicht_eba_stresstest.en.php) and Helaba (<http://www.helaba.de/en/Presse/Stresstest>).

⁵ In the euro area, around one-third of outstanding commercial property mortgages will mature between 2011 and 2013. More than half of all commercial real estate debt in the United Kingdom is estimated to mature over the next three years. See Bank of England, (2011), p 21 and European Central Bank (2011), p 24.

Chart 3.3

COMMERCIAL REAL ESTATE INDICATORS

As at end-December 2010



Sources: Bloomberg, EBA, Helaba, Investment Property Databank, Jones Lang Lasalle and Bundesbank calculations. — **1** Average of Berlin, Düsseldorf, Frankfurt am Main, Hamburg, Munich and Stuttgart, weighted by office space.

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Vulnerable housing markets in major countries placing a strain on securitisation

In some industrial countries in which households borrowed heavily prior to the financial crisis, the housing markets are still in a precarious state. The outlook for the respective markets and the associated securitised products are closely related to households' financial recovery process.

Residential real estate still vulnerable

US households initially reduced their debt relatively quickly. Owing not least to the weak labour market, however, it seems questionable whether they can keep reducing debt at that pace. In mid-2011, the debt ratio, at nearly 115% of disposable income, was still well above historical benchmarks. Although there are signs that US house prices have been increasingly returning towards levels that can be justified by the fundamentals, perceptible downside risks remain. These are reflected, in particular, in the high number of delinquent loans, foreclosures and outstanding mortgages that exceed the value of their mortgaged homes, as well as in an oversupply of housing.

Downside risks in the USA, ...

UK house prices initially rebounded strongly from early 2009 onwards. However, this trend has diminished in the past few quarters. Price-rent and price-income ratios still exceed their long-term averages by a considerable margin. At the same time, households face a substantial need for adjustment; at the end of the second quarter of 2011, their debt ratio stood at over 140% of disposable income. Since peaking in early 2008, Spanish housing prices have fallen by 17% yet still remain perceptibly elevated, judging from historical price-rent

... the UK and Spain

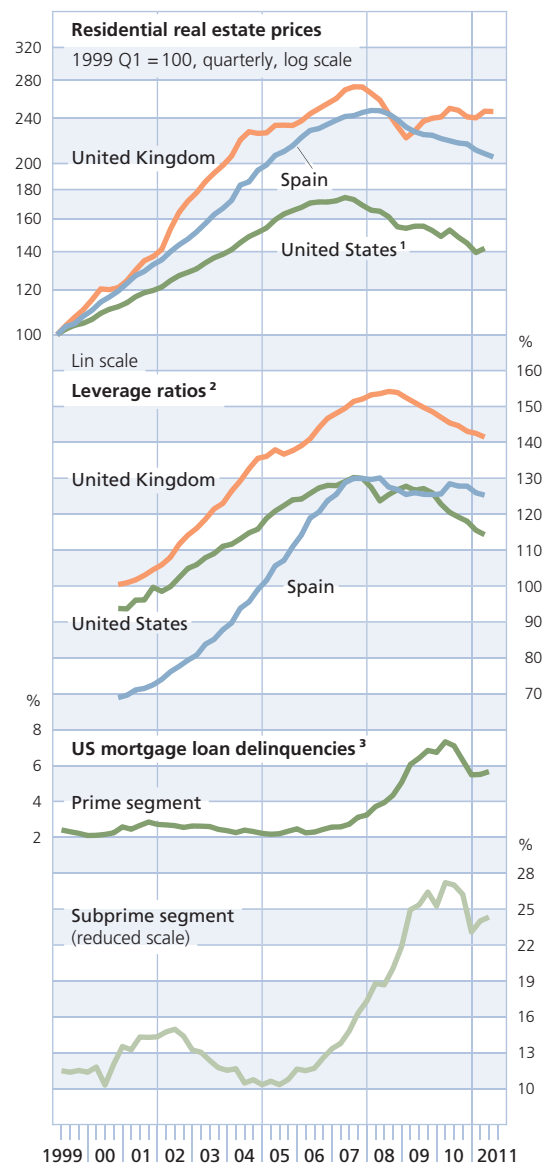
and price-income ratios. The correction of household debt, which at the end of the second quarter of 2011 still exceeded 125% of disposable income, has been sluggish thus far, which means that additional adjustments are to be expected (see Chart 3.4).

Structured securities of large German banks

A group of large German banks⁶ is still holding a considerable volume – €150 billion – of exposure in structured products. As at end-June 2011, residential mortgage backed securities (RMBS), with a book value of some €67 billion, were still the largest single item within this portfolio, while CMBS accounted for just under €16 billion, and various forms of collateralised debt obligations (CDOs) roughly €33 billion. The overall volume of these portfolios has declined significantly (by €55 billion) since the end of the second quarter of 2010. However, this was due not only to maturities and redemptions (around €20 billion) but to a considerable degree also to transfers of around €21 billion to resolution agencies (see Chart 3.5). The value of these structured securities remains vulnerable to falling prices in the international real estate markets. The market prices of many US and European CMBS and RMBS have come under renewed pressure since the late summer of 2011, which means that further value adjustments on banks' securitisation portfolios could become necessary.

Chart 3.4

SITUATION OF THE HOUSEHOLD SECTOR IN SELECTED COUNTRIES



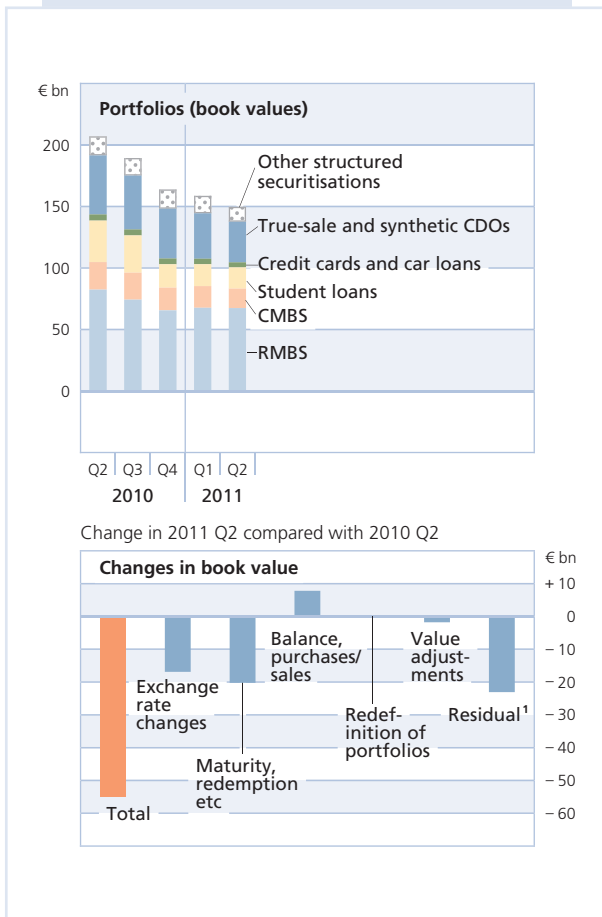
Sources: Bloomberg, Eurostat, ECB, Federal Reserve, Federal Housing Finance Agency, Ministerio de Fomento, Nationwide Building Society and Bundesbank calculations. — **1** Purchase-Only Index. — **2** Debt as a percentage of disposable income. — **3** Mortgage loans that are past due by at least 30 days as a percentage of outstanding loans for house purchase (number) in the respective segment.

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⁶ The Deutsche Bundesbank regularly surveys 17 large German banks on their investment in securitised products.

Chart 3.5

GERMAN BANKS' PORTFOLIOS OF SECURITISATIONS



¹ Includes transfers to resolution agencies.

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Risks of low-interest rate environment require vigilance

Low interest rates impacting on legacy holdings and new yield-seeking

It is particularly the sovereign debt crisis, as well as potential problematic legacy assets on banks' balance sheets, which are currently posing risks to the stability of the international financial system. Low interest rates pose the threat of credit risk caused by impaired assets being prolonged and concealed. Low interest

rate levels, in principle, allow the terms and conditions of existing loans to be eased. There are signs that this is taking place in some European countries. Although this easing could benefit the stability of the banking system in the short term, it warrants criticism if credit risk is consequently insufficiently backed or non-performing loans are thereby kept on "life support". The case of Japan in the mid-1990s shows that this can delay the recovery of the banking system and put the brakes on economic growth. With regard to the build-up of new risks in the low-interest rate environment, phenomena such as excessive leveraging, intensive maturity transformation and the sharp expansion of cross-border positions among large complex financial institutions (LCFIs) and hedge funds need to be borne in mind. Trends in individual asset classes – such as financial assets from emerging market economies and commodity markets – can likewise be used to draw conclusions about the extent of a possible resurgence in yield-seeking behaviour.

Credit growth and leveraging moderate

There are still hardly any signs that banks in western industrial countries are substantially re-expanding their activity; at the end of the second quarter of 2011 the volume of outstanding loans to the private sector was still down year on year in the United States and the United Kingdom. In the euro area and Germany, lending grew over the same period, yet not nearly as rapidly as before the financial crisis. Among LCFIs, which in the past were a barometer of trend reversals in risk-taking, there were no signs of a move to a new phase

Currently low level of risk-taking

of growing leverage throughout the reporting period, either. Amidst a considerable strengthening of capital, these institutions' aggregated total assets are still down significantly from their 2007 levels.

Improve flow-of-funds statistics

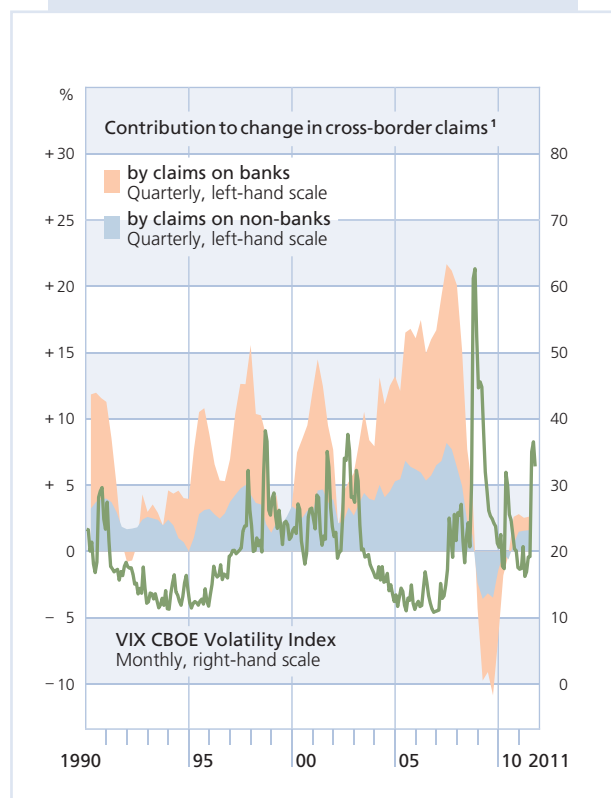
Developments in globally aggregated cross-border claims likewise indicate that banks' risk-taking is, on the whole, still tightly constrained (see Chart 3.6). All the same, the medium and longer-term risks of the low-interest rate environment will remain in the focus of micro-prudential and macro-prudential supervision. A further improvement in the international harmonisation of all relevant countries' flow-of-funds statistics would be desirable to allow better monitoring of the special momentum of debt incurred through domestic and cross-border borrowing down to sector level.

Reporting requirements for hedge funds necessary

Although average leverage in the hedge fund industry had almost returned to its pre-crisis level by the beginning of 2011, the latest upheaval in the markets is likely to have forced many market participants to deleverage once again, especially since prime brokers have lastingly tightened the credit conditions for hedge funds as a result of the financial crisis.⁷ Internationally harmonised reporting requirements are necessary so that the risks from hedge funds' positions can be robustly assessed. The International Organization of Securities Commissions (IOSCO) has taken on a coordinating role. The proposals put forward by the US Securities and Exchange Commission (SEC) in October 2011 on the collection of information in the key US market are encouraging. Globally standardised reports to IOSCO would provide a comprehensive picture of the risk situation in the global hedge fund sector for the first time.

Chart 3.6

CROSS-BORDER LENDING ACTIVITY AND RISK AVERSION



Sources: BIS, Bloomberg and Bundesbank calculations. — ¹ Of BIS reporting banks, including claims on their foreign branches and subsidiaries. Growth rate is calculated as the sum of exchange rate-adjusted changes in the volume of claims on banks or non-banks for the last four quarters as a percentage of all cross-border claims at the beginning of the period.

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Emerging market economy risks: credit and asset price bubbles and a "sudden stop"

Net capital inflows reached new highs at the end of 2010 and the beginning of 2011 in major EMEs such as Brazil, China, Indonesia

High capital inflows ...

⁷ See Financial Services Authority, UK (2011).

Table 3.1

EMERGING MARKET ECONOMIES: SELECTED INDICATORS FOR RISKS ASSOCIATED WITH CAPITAL INFLOWS*

Country	Net capital inflows as % of GDP ¹	Credit growth (real) ²		Equity valuation ³		
	z score	Year-on-year change (%)	Average of the last three years (%)	z score P/E ratio ⁴	z score of the estimated P/E ratio ⁴	z score P/B ratio ⁵
Argentina ⁶	0.4	35.3	15.2	-0.2	0.1	0.3
Brazil	1.3	19.6	14.8	-0.7	-0.5	-0.2
China	1.3	10.1	18.7	-1.4	-1.2	-1.0
India	-0.6	11.8	8.8	-0.3	-0.7	-0.3
Indonesia	2.0	17.5	12.8	-0.1	0.5	0.6
Mexico	0.5	11.8	2.3	0.5	0.5	0.3
Russia	0.0	7.8	8.0	-1.3	-1.4	-0.7
Saudi Arabia	-1.0	3.1	5.2	-1.2	-0.8	-0.8
South Africa	0.1	-0.7	-0.6	-0.7	-0.8	-0.4
South Korea	-0.5	-1.4	3.4	-0.2	-0.5	0.0
Turkey	1.3	34.6	18.2	0.0	0.0	-0.3

Sources: Bloomberg, Datastream, IMF, SAMA and Bundesbank calculations. — * The z score is the distance, expressed as the number of standard deviations, between the last data point and the mean of the dataset. — **1** The IMF regards a z score > 1 as problematic (values shaded in red). — **2** The IMF defines a period of strong credit growth as a period in which average real credit growth over a three-year timeframe exceeds 17% (values shaded in red). — **3** The IMF regards z scores > 1.5 as requiring observation and > 2 as problematic. Bloomberg uses the current-year profits to calculate the price-to-earnings (P/E) ratio. In order to calculate the estimated P/E ratio, Bloomberg surveys market watchers on their profit expectations for the coming 12 months. — **4** Price-to-earnings ratio. — **5** Price-to-book value ratio. — **6** Argentina's real credit growth was calculated using official inflation statistics and may therefore potentially be overstated.

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and Turkey.⁸ Low interest rates in the industrial countries and investors' attendant yield-seeking, as well as the fast pace of EMEs' economic growth, have played a role in this. High capital inflows harbour the danger of adding further fuel to credit and asset price bubbles. Lending in some EMEs, after temporarily dipping sharply in 2008, is back to levels well above its historical average. Towards the end of the second quarter of 2011, real credit

growth in Argentina and Turkey was even up by more than 30% year on year. A credit boom harbours specific risks if it is accompanied by a sharp rise in asset prices. In fact, EME stock markets have rallied significantly in parallel with capital inflows. Following the latest falls in stock prices, however, only half

⁸ Net capital inflows excluding changes to foreign reserve assets based on available balance of payments data as at 31 March 2011.

of the observed countries' indices were trading above their level at the beginning of 2008. Judging by the relevant valuation metrics, the EMEs' stock markets are showing few signs of exaggerations (see Table 3.1).

... could reverse themselves abruptly

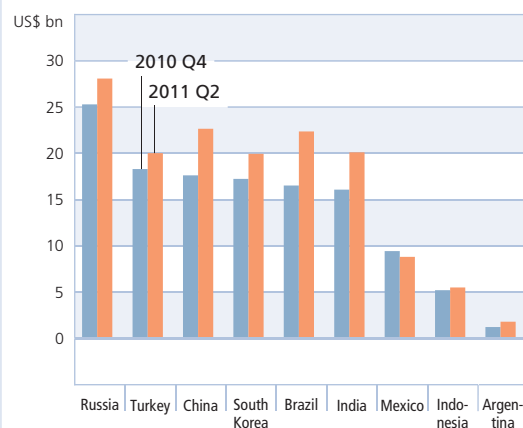
Following temporary withdrawals of capital by international investors since late summer 2011,⁹ which have caused some countries' currencies to depreciate significantly, increasing attention is now also being paid to the risk of a "sudden stop" to the heavy capital inflows into the EMEs – all the more so given the more volatile character of a large share of the inflows. The capital flows of the past few years were based less on stable direct investment than on more volatile components such as portfolio investment and bank lending. A further deterioration in the outlook for global growth, an increase in risk aversion or shifts in international interest rates could all trigger a "sudden stop". However, the majority of large EMEs appear to be quite well placed to cope with such an abrupt halt in inflows. High foreign reserve assets – in absolute terms and also compared with external liabilities – and a current account surplus are mitigating the risks of short-term and volatile capital inflows to many major EMEs. However, countries such as Turkey, with a current account deficit that is funded primarily by volatile inflows, and/or countries such as South Korea, which, due to high external debt, eg that of the banking system, are dependent on the risk appetite of international investors and on the financing conditions in the international markets, face particular challenges.

Indirect risks for German banks

Even if the risks to EMEs arising from credit and asset price bubbles or a sudden stop were to materialise, the direct impact via the chan-

Chart 3.7

GERMAN BANKS'* CROSS-BORDER CLAIMS ON SELECTED EMERGING MARKET ECONOMIES



Source: BIS. — * Including foreign branches and subsidiaries.

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nel of German banks' claims on the respective countries would be limited (see Chart 3.7). Nonetheless, the German financial system could also be affected, above all, through various indirect channels, such as potential network or confidence effects.

Commodity markets – a young investment class holding new risks

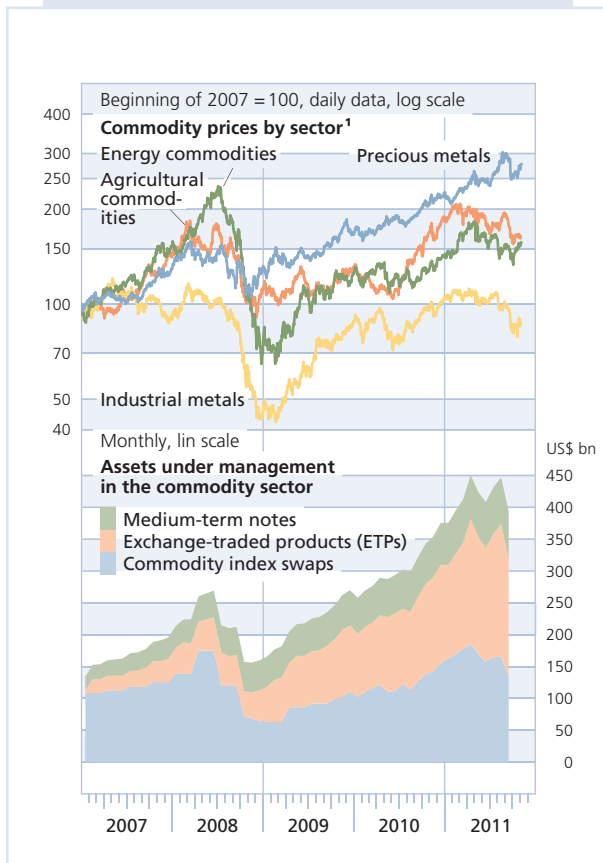
In the past few years, strong price surges in the commodity markets have been accompanied by high capital inflows. At the end of the third quarter of 2011, invested

Financialisation of commodity markets ...

⁹ Data on the funds invested in EMEs, which are timelier than balance of payments data, provide current information on capital flows.

Chart 3.8

PRICES AND ASSETS UNDER MANAGEMENT IN THE COMMODITY SECTOR



Sources: Thomson Reuters and Barclays. — 1 S&P Goldman Sachs Commodity Index Spot Price.

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assets amounted to just under US\$400 billion (see Chart 3.8). The commodity markets have increasingly been discovered as a target for large investments in a process known as “financialisation”. It is characterised by innovative financial products (commodity price indices, exchange-traded products (ETPs)) and new financial market participants, such as banks as proprietary traders, insurers, index funds and hedge funds.

On the back of financialisation, short-term investment strategies may be expected to gain in importance, making the affected market segments still more vulnerable to swings. In addition, a further increase in financial investors’ activity in commodity markets is likely. In the upshot, the financialisation process could call into question the diversification benefits of investing in commodities. Greater correlation between stock and commodity indices could therefore nullify the advantages of trading strategies that feature commodity positions taken in order to diversify risk. A small yet growing share of investment is in physically deposited industrial commodities, which are therefore initially removed from the real production process.

... could intensify swings and correlations

The insufficient transparency of the over-the-counter (OTC) derivatives markets and spot markets makes it difficult to assess the impact of individual groups of investors and trading strategies on the pricing process in the commodity markets. One central item on the agenda of ongoing reform is to improve data availability, which has thus far been poor, at the global level. Key steps include standardisation and central clearing of OTC derivatives, establishing centralised trade repositories and international registries of participants – possibly also for physical commodity trades. A broader base of data across all commodity segments is likely to avert the danger of market abuse – such as by agents with a dominant position in the markets. It will also enable a more robust assessment of the need for regulatory measures which many are calling for. Not least, a comprehensive pool of data will enable supervisors to make better and swifter assessments of the incurred risks

Improve data availability

and the resulting vulnerabilities in the financial system. In particular, high pressure to sell leveraged positions can engender risks to financial stability.

High concentration of risks among banks

Market volumes have risen considerably through the financialisation process. At the same time, concentration risk is relatively pronounced. LCFIs play a central role on the commodity markets as proprietary traders and market makers in OTC trading. Some institutions are additionally active in the physical market segments and are directly invested in warehouses, power plants, pipelines and tankers. German banks, however, are not yet heavily invested directly in the commodity sector.

Insurers not heavily invested at all

On the whole, the German insurance sector is not heavily invested in commodities at all. However, the low-interest rate environment, which is posing a major challenge particularly to life insurers, could encourage them to increase their positions in alternative and supposedly high-yielding asset classes. After all, the new Investment Regulation (*Anlageverordnung*) for insurance companies of 30 June 2010 allows insurers to invest up to 5% of bound assets in commodities. Commodity investment was previously only permitted within the ratio for investment in hedge fund shares.¹⁰

New, inexperienced participants

In future, small banks and insurance corporations could also move into the commodity markets to join the established institutions. In Germany, small banks' capital requirements for commodities still make up a moderate 5% of their overall capital requirements for market risk. It is questionable whether new-

comers with hardly any previous experience of investing in commodities, in particular, have sufficiently sophisticated risk management to enable them to engage in what is a highly volatile market segment. In the past few years, a big bank and a hedge fund in North America encountered distress in proprietary commodity trading, which shows that such risks can materialise even among supposedly experienced commodity market agents.¹¹ The risk management practices of banks and insurance companies active on the commodity markets must therefore be monitored, even in Germany, where financial institutions have a relatively low exposure.

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N M Boyson, C W Stahel and R M Stulz (2010), *Hedge fund contagion and liquidity shocks*, *Journal of Finance*, Vol 5, No 5, October 2010.

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¹⁰ However, based on the specifications for the fifth quantitative impact study (QIS5), it is likely that the capital requirements for commodity investment will be relatively high pursuant to the new Solvency II framework.

¹¹ In April 2007 Canada's Bank of Montreal reported a loss of CAN\$680 million on its natural gas market positions. The hedge fund Amaranth lost around US\$6 billion in 2006 by misjudging the natural gas market.

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German financial system between heightened resilience and growing contagion risk

| The German financial system has improved its resilience. Many banks have been able to take advantage of the favourable macroeconomic environment to improve profitability, strengthen their capital base and, in this way, lower their leverage ratio. Thanks to the robust state of the economy, loan loss ratios have dropped to their lowest level in three years. Market risk remained at a low level until the summer. Furthermore, rising customer deposits have lowered dependence on the interbank market. German insurance companies have also benefited from the favourable economic situation, with premium growth receiving a boost from the sharp rise in single premiums in life insurance. Today, however, the German financial system faces greater uncertainty, which is testing its improved resilience. Given the growing contagion risk for the German financial system, it is important that the details of the measures adopted at the European level to counter the confidence crisis are swiftly finalised and implemented. |

Strengthened resilience to face new challenges

In autumn 2011, the German financial system still finds itself in a good situation compared with other European countries. It is still being buoyed by an, as yet, intact upturn that is helping to restrict domestic credit risk and reduce write-downs. The relatively sound German public finances, too, are supportive. Banks have strengthened their resilience considerably in this setting.

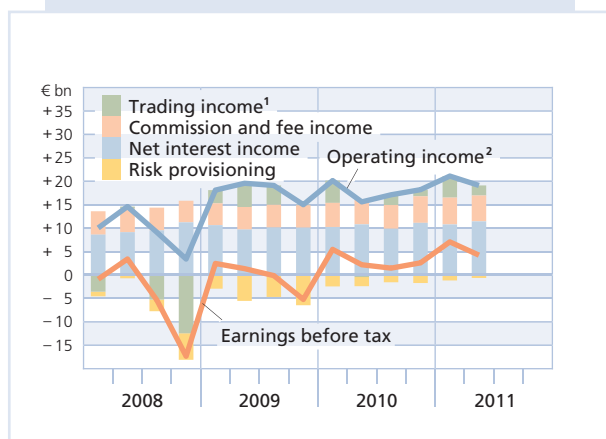
Position still good, ...

However, strains in the German financial system are now becoming apparent. Current developments in the international financial markets are also having an impact on German banks. Given the sovereign debt crisis, write-downs are to be expected, albeit to a lesser extent than in other countries. Banks' funding costs have risen. Earnings prospects have clouded over on the whole. The German banking sector's heightened resilience will be increasingly challenged.

... yet new strains becoming apparent

Chart 4.1

COMPONENTS OF OPERATING INCOME*



Sources: Information provided by the enterprises and Bundesbank calculations. — * Comprises IFRS figures of 13 major German banks with an international focus that did not offload assets to resolution agencies during the reporting period. — ¹ Including result from financial assets classified at fair value through profit or loss. — ² Total of net interest income, commission and fee income and trading income.

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Strong income to date – clouded prospects

Strong first quarter

In the first half of 2011, the major German banks with an international focus¹ were able to raise their aggregate operating income² by 13% year on year (see Chart 4.1). This was mainly due to a strong first quarter. In the second quarter the persistently high capital market volatility had an increasing impact. The associated investor uncertainty led to lower transaction volumes, causing commission and fee income to fall slightly (–4% compared with the previous quarter). The rising volatility in the financial markets is also reflected in erratic income from proprietary trading. High trading income in the first quarter of 2011 was followed by a 53% slump in the second

quarter. Falling share prices as well as fair value losses due to distortions on the sovereign bond markets also played a part in this development.

The pre-tax result of major German banks with an international focus received a boost from the ongoing decline in loan loss provisioning, which fell to a total of €636 million in the second quarter of 2011; this was the lowest level since 2008. Interest income again proved a major source of earnings, with the surveyed banks benefiting from favourable developments in lending and deposit business. Most recently, they clearly exceeded the long-term average of 0.72% with an average annualised interest margin³ of 0.83%, the above-average domestic economic growth bolstering the favourable trend in earnings income. The deteriorating situation on the international financial markets is now putting pressure on the earnings outlook, however. This applies, first, to trading income. Second, in connection with a higher private sector involvement in safeguarding the sustainability of Greek public finances, the need for additional write-downs is becoming apparent; however, it will be less for the German financial system than for the financial systems of other countries. German institutions are also likely to feel the effect of higher funding costs – again to a lesser extent than in other countries. Against this background, a number of institutions

Risk provisioning down

¹ In previous Financial Stability Reviews, the group comprised 15 major German banks with an international focus. However, two institutions that offloaded assets to resolution agencies in the period under review were excluded from the analysis for this year's Financial Stability Review.

² Total of net interest income, commission and fee income and trading income.

³ The interest margin is defined as net interest income in relation to total assets.

Box 4.1

STRESS-TESTING BANKS' PROFITABILITY

Two stress scenarios were examined: (A) a slump in economic growth in 2012 and 2013, followed by an economic recovery,¹ as well as (B) an extended period of slow growth² along with a flattening of the yield curve, which is unfavourable for the banks and a widening of spreads in funding via bonds. The effects for major banks with an international focus and smaller banks with a national focus were identified separately.³ This takes account of the different business models.

Crisis scenario A hits the operating income of the large banks hardest. Crisis scenario B results in a marked decline in operating income in both groups of banks. In recession scenario A, write-downs increase and remain at a high level. Write-downs of just over €30 billion would be required in both 2012 and 2013 compared with approximately €26 billion would be required in the baseline scenario (see adjacent table).

These burdens would reduce the capacity of banks to generate internal financing, impede their function as intermediaries and thus impair financial stability. If no other capital accumulation sources are available,

OPERATING INCOME AND GROSS WRITE-DOWNS OF GERMAN BANKS IN DIFFERENT SCENARIOS

€ billion

Year	Baseline scenario	Scenario A ¹	Scenario B ²
Operating income of large banks			
2011	12.7	11.5	4.5
2012	11.0	4.1	-4.8
2013	10.5	3.7	-3.3
2014	10.4	4.9	-0.9
2015	9.7	6.3	0.9
Operating income of small banks			
2011	17.4	17.0	13.0
2012	14.6	11.4	4.3
2013	13.7	11.1	3.0
2014	13.3	11.3	3.6
2015	11.8	11.0	5.0
Gross write-downs of German banks			
2011	24.2	24.8	24.8
2012	25.6	30.8	27.3
2013	25.6	30.0	27.7
2014	25.2	28.4	27.5
2015	25.6	26.8	27.9

risk-weighted assets would probably be reduced.

¹ The assumed path for the growth rate of real GDP is as follows. 2011: 2.6%; 2012: -2.2%; 2013: -0.1%; 2014: 0.8% and 2015: 1.4%. — ² A 4 percentage point deviation from the Bundesbank and IMF projections was assumed, cumulated over five years. The assumed path for the growth rate of real GDP is as follows. 2011: 2.6%; 2012: 0.2%; 2013:

0.5%; 2014: 0.8% and 2015: 0.4%. — ³ The sample comprises big banks, Landesbanken and the regional institutions of credit cooperatives under large banks, and savings banks, credit cooperatives, mortgage banks and small private banks as small banks.

have revised their profit expectations downwards (see Box 4.1 on page 45).

Regulation and earnings prospects

Finally, account also has to be taken of the impact of the regulatory changes on future earnings prospects. The rules and conditions of the German bank levy have already been finalised. These additional burdens will tend to lower banks' results in future. However, the *pro rata temporis* charges resulting from the banking levy in the first half of 2011 came to a total of only €242 million for major German banks with an international focus. In the current environment, these banks would do well to strengthen further both their stability in the face of crisis and their resilience, and to continue adjusting their business models to the new framework conditions.

Resilience of the German financial system

Leverage scaled back

The leverage, measured as total assets to tier 1 capital, of the major German banks with an international focus has fallen from 43 in the first quarter of 2008 to 33 (see Chart 4.2). Above all, this development reflects a substantial growth in regulatory tier 1 capital. Balance sheet assets have changed very little since the first quarter of 2008. Without the effects of the German Act Modernising Accounting Law (*Bilanzrechtsmodernisierungsgesetz*), a marked decline would have been posted for the 2010 financial year.⁴

Tier 1 capital ratio up

Institutions' tier 1 capital ratio⁵ under the currently valid Basel II rules rose from 8.3% in the first quarter of 2008 to 13.1% in the second quarter of 2011, and is now at the average level for the large international banks. Besides

this increase in tier 1 capital, a substantial drop in risk-weighted assets was also an important contributory factor.

Tier 1 capital improved in terms of quantity and quality

The growth in tier 1 capital is attributable both to earnings retentions and to capital increases by issuing new shares. Regulatory tier 1 capital has risen overall as a result. Internal funding has again contributed to capital growth on balance since the second quarter of 2010 (see Chart 4.3). After the primary markets for equity had largely dried up during the financial crisis, the situation for external financing also seems to have eased since the fourth quarter of 2010. Over the last 12 months, the two largest German private banks together placed shares on the market worth close to €20 billion. The capital raised was used in part to repay state capital assistance received during the financial crisis.

Sources of new capital

At many institutions, the composition of tier 1 capital has seen both a quantitative increase

Quality of tier 1 capital improved

⁴ The Act Modernising Accounting Law stipulates that derivative financial instruments in the trading portfolio must, as from December 2010, be reported in the balance sheet. Regarding the new rules in the Act Modernising Accounting Law, see Deutsche Bundesbank (2011c), pp 15–57. Uncertainty exists with regard to the 2010 financial year, as the exact time at which derivative instruments were included in the trading book is not known in every case. Adjusted for these balance sheet components, there would have been a decline.

⁵ The term "tier 1 capital" used here refers to the tier 1 capital according to Basel II after regulatory deductions. Under current law, banks are required to maintain tier 1 capital for solvency purposes. A distinction has to be made between tier 1 capital and the term "core tier 1 capital". Core tier 1 capital comprises only components with the highest loss absorbency capacity, such as paid-in capital and retained earnings. Core tier 1 capital is the sum of the following components: common shares issued by the bank, share premium, retained earnings, accumulated other comprehensive income and other disclosed reserves, common shares issued by the bank's consolidated subsidiaries as well as applied regulatory adjustments. See Basel Committee on Banking Supervision (2011), pp 13–15.

and a qualitative improvement. The definition of capital in the EBA stress test has proven to be a catalyst for a number of Landesbanken to strengthen the owners' silent participations by means of supplementary clauses and to adjust their capital base to the forthcoming Basel III regulatory requirements.

Declining total assets

Impact of accounting needs to be borne in mind

The aggregate total assets of the major German banks with an international focus have remained unchanged at around €5.2 trillion since the beginning of 2009. However, these figures from the Deutsche Bundesbank's monthly balance sheet statistics largely reflect the first-time application of the Act Modernising Accounting Law in the 2010 financial year. In particular, the requirement that derivative financial instruments held for trading be reported at fair value in annual accounts in accordance with the German Commercial Code (*Handelsgesetzbuch*) has, in itself, led to a sizable increase in total assets at many institutions. According to old law, total assets would have fallen.

Marked decline in IFRS total assets

The analysed institutions' financial statements in accordance with the International Financial Reporting Standards (IFRS) show that, without these special effects in 2009 and 2010, aggregate total assets would have declined considerably. According to the IFRS, they decreased perceptibly from €6.2 trillion to €5.2 trillion.⁶ In particular, this trend is attributable to banks that were, or expect to be, required by the

⁶ The consolidation groups of the analysed institutions differ depending on which of the accounting standards is used.

Chart 4.2

LEVERAGE AND TIER 1 CAPITAL*

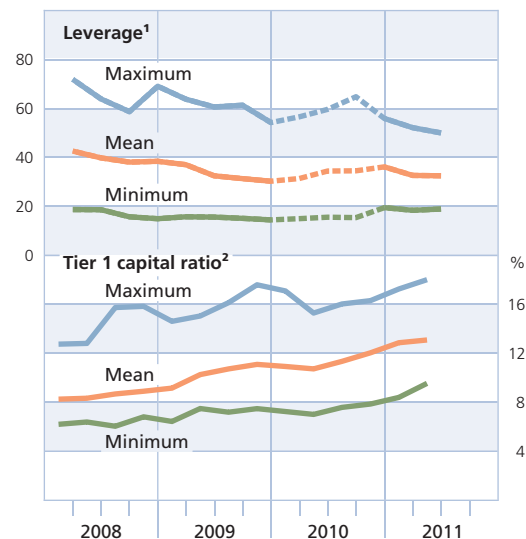
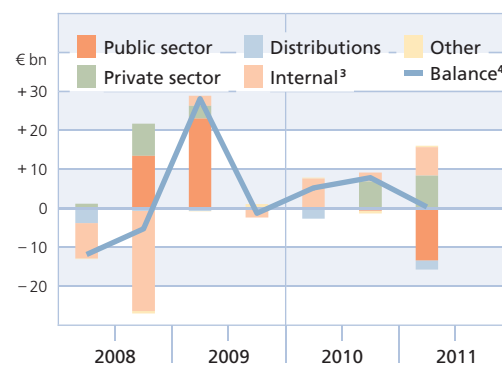


Chart 4.3

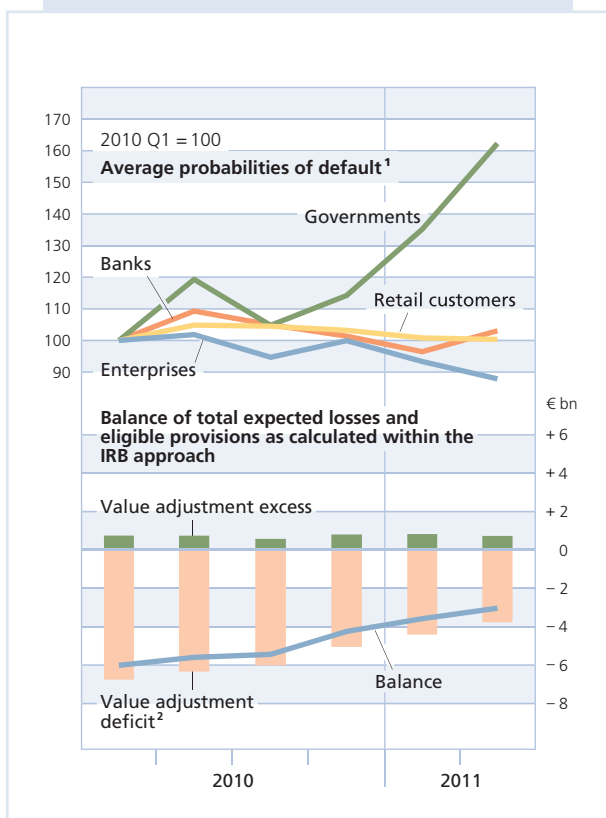
SOURCES OF CAPITAL FORMATION*, **



* This chart looks at 13 major German banks with an international focus that did not offload assets to resolution agencies during the reporting period. — **1** Total assets in relation to tier 1 capital; 2010 transitional period pursuant to the Act Modernising Accounting Law. — **2** Tier 1 capital in relation to risk-weighted assets. — ** Sources: Published information provided by the enterprises and Bundesbank calculations. — **3** Contains retained earnings (+), losses (-) and changes in other reserves. — **4** Balance of capital injections and reductions.

Chart 4.4

AVERAGE PROBABILITIES OF DEFAULT AND IMPAIRMENT GAP*



* This chart looks at 13 major German banks with an international focus that did not offload assets to resolution agencies during the reporting period. — 1 Excluding impaired assets deemed under Basel II to be defaulted. — 2 Including expected losses for certain equity exposures.

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European Commission to reduce their balance sheets because they received state aid during the financial crisis. Moreover, outsourcings of risk assets to resolution agencies brought about a considerable balance sheet reduction at two large German institutions that have been omitted from this year's study for reasons of comparability.

Risks between cyclical upturn and sovereign debt crisis

Regulatory capital requirements of major German banks with an international focus fell from €139 billion in the first quarter of 2008 to €98 billion in the second quarter of 2011. Of this total, around 85% is accounted for by counterparty credit risk, 6½% by market risk and 8½% by operational risk. The economic upswing in Germany played a greater role in quantifying counterparty credit risk than the credit downgrades caused by the sovereign debt crisis.

Riskiness of assets lower

Chart 4.4 shows the average probabilities of default, estimated by the banks, for the main asset classes according to their prudential reports. A sharp increase in exposures to governments is discernible in the second quarter of 2010, and roughly coincides with the onset of the Greek crisis in May 2010. The first rescue shield had the effect of briefly pushing these probabilities of default down to their initial level. The spread of the confidence crisis to other euro-area countries up to the second quarter of 2011, on the other hand, triggered a renewed sharp rise in the estimated probabilities of default by around 50%. The average value of exposures to banks fell up to the first quarter of 2011. The calculated default risk of exposures to enterprises and retail customers decreased of late due to the favourable economic situation.

Drop in default risk posed by retail customers

A comparison of the analysed banks' expected losses with write-downs shows that the substantial impairment gap at the end of 2009 was reduced considerably by the third quarter of 2011. This is a reflection of the positive

Impairment gap almost closed

economic developments and, consequently, of the drop in default risk.

Credit risks: will the cyclical tailwind continue?

Domestic credit risks benefit from upturn

The domestic credit risks of all German banks⁷ benefited from cyclical tailwind during the first six months of 2011. This was supported by enterprises' positive performance and households' relatively sound finances.⁸ How domestic credit risks develop will depend to a large extent on whether economic activity in important regions of the world and in Germany cools.

Robust situation of domestic borrowers

Recovery of loan loss ratio

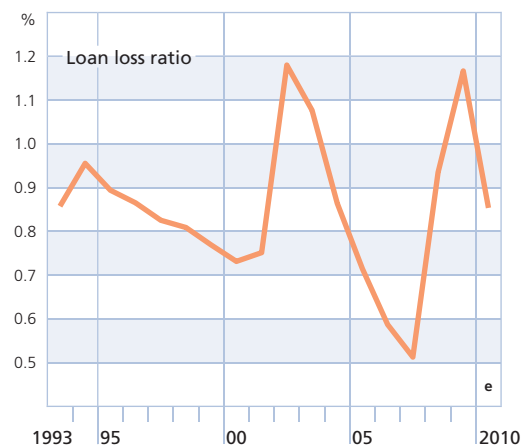
The quality of domestic loans to enterprises, which accounted for almost 40% of domestic lending at the end of the second quarter of 2011,⁹ is robust overall. Over the past two years, German banks' loan loss ratio recovered on the back of the economic upswing and is now back at the average pre-crisis level (see Chart 4.5).

Improved business finances

The current moderate level of credit risks is also reflected in the indicators of non-financial corporations' finances. Corporate leverage, which for the past three years has been primarily driven by fluctuations in gross value added, has fallen significantly and is now back at pre-crisis level. At the same time, net interest expenditure is at an all-time low. The number of business insolvencies and exposure per business insolvency are also on the decline (see Chart 4.6).

Chart 4.5

LOSSES IN LENDING BUSINESS*



* Write-downs and loss provisions by German banks for loans and value adjustments for commitments in lending business as a percentage of the volume of customer loans.

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At 43% at the end of the second quarter of 2011, loans to households accounted for the largest share of domestic lending. Credit risks in this area currently continue to be perceived as moderate thanks to overall sound household finances and reduced unemployment. Households' net financial assets are now well above their pre-crisis levels. At roughly 96% of disposable income, households' leverage is more or less stable. Households' interest expenditure has decreased significantly in the low-interest rate environment (see Chart 4.7). The number of consumer insolvencies has stabilised at pre-crisis level, and the exposure per

Sound household finances

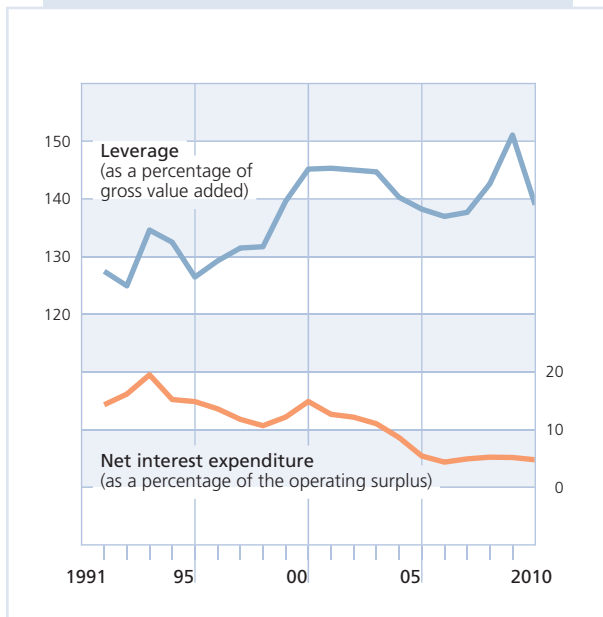
⁷ For a definition, see Deutsche Bundesbank (2011e), pp 27–30.

⁸ In total, domestic lending comprised approximately 80% of lending business with non-banks.

⁹ Excluding loans to government and interbank loans.

Chart 4.6

FINANCIAL INDICATORS OF GERMAN ENTERPRISES



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consumer insolvency has remained relatively constant over the last few years.

Pick-up on German real estate market

Loans to households primarily for house purchase

Loans for house purchase totalling just under €800 billion represented the vast majority (78%) of all loans to households at the end of the second quarter of 2011. The Bank Lending Survey provides important indications of banks' expectations of credit risk. According to the survey, from 2009 onwards the perception of risk regarding general economic activity played a dominating role in changes to credit standards for loans for house purchase. Recently the improved housing market prospects have gained importance.

House prices in Germany picked up in 2010. *House prices up* One reason for this is probably the fact that financing conditions are extremely favourable by historical standards. Price developments are marked by strong regional heterogeneity. On the one hand, prices of newly constructed housing outpaced those of owner-occupied houses for resale. On the other hand, a clear rise in prices could be seen in urban areas in particular. These submarkets may also have benefited from investors' attempts to safeguard the real value of their assets with the result that they increasingly invest in real estate in areas of Germany where growth prospects are particularly favourable (see Chart 4.8).¹⁰ An analytical comparison conducted by the European Central Bank (ECB) for a number of euro-area countries indicates that the undervaluation of residential property in Germany has, in part, been corrected. However, on average, the indicators still show an undervaluation of around 10%.¹¹

The commercial real estate market in Germany appears largely free of price exaggerations. *Commercial real estate market free of price exaggerations* The office vacancy rate is declining, and after a period of stagnation in 2010, prime rents picked up. Experience abroad has shown that real estate markets tend towards pronounced cycles and exaggerations, which can generate sizeable macroeconomic costs.

¹⁰ See Deutsche Bundesbank (2011a), pp 54–55.

¹¹ See European Central Bank (2011), p 59. However, there is a considerable degree of model uncertainty in such calculations.

Market risk characterised by increased volatility

Market risk position shows minor change

In principle, two factors influence the vulnerability of a bank to market risk: market volatility and the size of the bank's market risk position. Uncertainty about the sovereign debt crisis and the economic outlook recently led to higher volatility on the equity markets.¹² However, based on a sample of 23 German banks¹³ as at the end of March reporting date, market risk positions showed only minor changes on the year.

Small institutions engage in maturity transformation

The risks of interest rate fluctuations are marked by a pronounced heterogeneity. Small and medium-sized banks engage to a large degree in maturity transformation, which generates an important component of their net interest income.¹⁴ In a parallel upward shift of the yield curve by 150 basis points, small and medium-sized banks would have to withstand losses equivalent to 14% of liable capital. Commercial banks and regional institutions, however, are largely hedged and if there were such a shift they would suffer relatively low losses of 2% of liable capital (see Chart 4.9).

Manageable risks on the equity market...

The volatility of equity prices rose sharply in August 2011. In this context the scenario assuming a 30% decline in equity prices gained significance. In this scenario, modest losses of 1.6% of liable capital arise for the German banking system. For commercial banks and

¹² Both the volatility index for the DAX (VDAX) and the S&P 500 (VIX) have risen sharply since the end of July 2011.

¹³ This group includes 14 commercial banks and regional institutions as well as nine medium-sized and smaller banks.

¹⁴ See C Memmel (2011), p 286.

Chart 4.7

HOUSEHOLDS' FINANCIAL ASSETS AND LEVERAGE

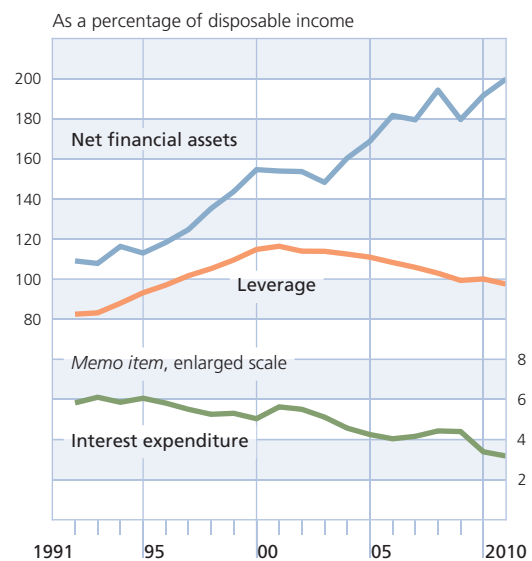
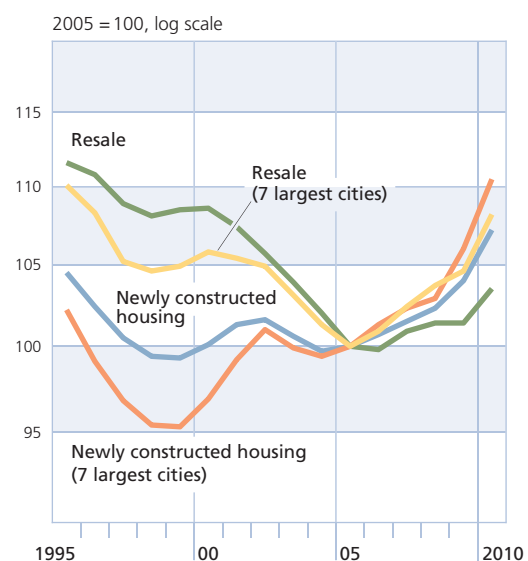


Chart 4.8

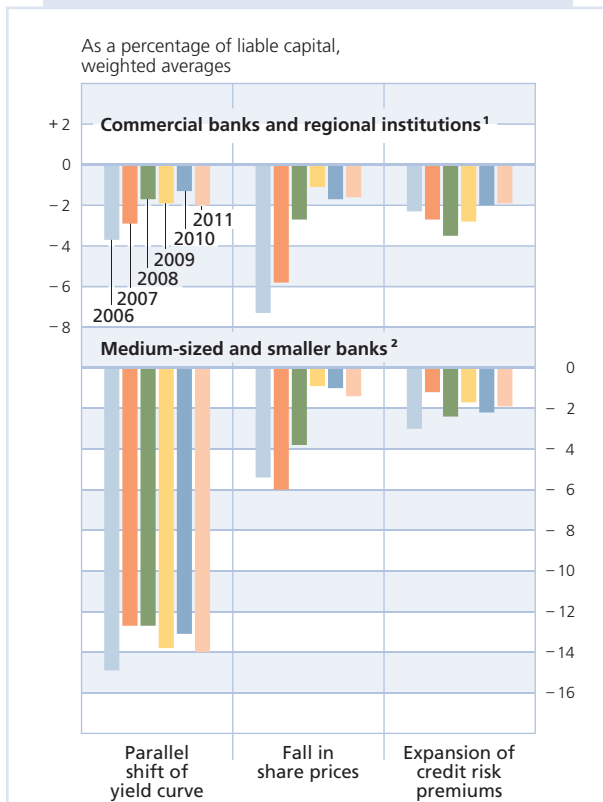
HOUSE PRICES IN GERMANY*



* Data based on values of terraced houses and owner-occupied apartments. Source: BulwienGesa AG.

Chart 4.9

CHANGES IN MARKET VALUES UNDER SELECTED SCENARIOS* IN MARKET RISK STRESS TESTS



* Each occurring intra-day, on 31 March each year (31 May in 2007). For a description of the risk scenarios, see Stress tests: methods and areas of application, Deutsche Bundesbank Financial Stability Review 2007, p 97 ff. — **1** 14 Institutions. — **2** Nine institutions.

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regional institutions, just over one-fifth of the losses stems from the trading book and thereby burdens the banks' result directly. For small and medium-sized banks, the share of losses in the trading book is negligible. In comparison with the dramatic escalation in the markets caused by the Lehman insolvency, German banks are today in a more robust situation in the face of these risks.

Risks arising from widening credit spreads are currently an important topic in view of the ongoing sovereign debt crisis and the turbulence in the financial markets. However, in the assumed scenario,¹⁵ German banks would only suffer a loss of 1.9% of liable capital. In particular, commercial banks and regional institutions have reduced their net positions appreciably compared with the height of the financial crisis in 2008. There is a special situation at Pfandbrief banks and mortgage banks, which continue to show high open positions. As in the previous year, the 23 banks under consideration have low vulnerability to a higher volatility of interest rates, share prices and exchange rates.

... and with respect to credit spreads

Restoring confidence

The international financial markets are growing increasingly sceptical in their assessment of the outlook for the financial sector. The loss of confidence in banks stems from a variety of factors: macroeconomic developments such as the debt crisis and the possibility of a global economic downturn together with sectoral doubts as to whether lucrative but risky business models will remain viable in the future. Misgivings of this kind are fuelled by individual occurrences which suggest that risk managers, including those working at major international banks, are still struggling to realise an adequate monitoring of proprietary trading. To cite an example, this phenomenon

Waning confidence in banks

¹⁵ The scenario includes a rise of 10 basis points in the credit spreads for bonds with an AAA rating, 20 basis points for AA or A, 50 basis points for BBB, 100 basis points for BB or B and 200 basis points for CCC or a worse rating.

of dwindling confidence is evident in falling bank share prices, especially since August 2011. In spite of an increase in profitability and its strengthened resilience, the German banking industry proved unable to escape this international trend.

Countering
the loss of
confidence

Countering this loss of confidence is possibly the greatest challenge facing the financial industry at present. Essentially, it is a question of looking at long-term factors specific to individual institutions such as the underlying business model and the quality of their risk management. However, in times of systemic stress, markets cease to make broad-based distinctions because, supposing an exogenous shock actually triggers a systemic crisis, it is almost impossible *ex ante* to forecast the position of an individual bank. In such a scenario, the task of restoring confidence is not merely the responsibility of an individual bank but also a call to arms for the system as a whole. Given the high degree of interconnectedness and the risk of contagion, this challenge demands not just an adequate capitalisation of national banking systems but also convincing solutions that are coordinated across Europe.

Capitalisation
of European
banks...

On 26 October 2011, the heads of state or government of the member states of the European Union agreed to such a solution which contains two core elements, the first being the recapitalisation of large banks and the second consisting in underwriting longer-term bank liabilities. For the purpose of calculating capital requirements, the large European banks that could have a destabilising effect on the system are to mark to market their entire holdings of bonds and loans from euro-area countries as at 30 September 2011. This is

intended to relieve market participants of any uncertainty about hidden losses and thus, ultimately, about institutions' creditworthiness. After marking sovereign bonds to market, all relevant banks should have a 9% core tier 1 capital ratio. According to provisional figures released by the European Banking Authority (EBA), European credit institutions' capital requirements will amount to €106.4 billion; of that total German banks account for €5.2 billion (see box 4.2 on page 54). In addition to earnings performance in the third quarter of 2011, the need to take account of the effects of the introduction of CRD III on individual institutions is likely to push up the figure. The nonetheless modest size of the German banking system's capital requirements in comparison with other European countries is largely due to the fact that German institutions recently raised their capital ratios. Moreover, banks generally hold government bonds issued by their home country and German bonds continue to enjoy a first-class credit rating.

Credit institutions are to acquire the necessary capital from the market or from their owners by 30 June 2012. If this is insufficient, they can make use of public sector capital injections provided by the individual member countries concerned; specifically for Germany, this poses the question of whether to re-implement the Financial Market Stabilisation Act (*Finanzmarktstabilisierungsgesetz*). Any competition and state aid-related legal problems which might arise from public sector capital support need to be tackled in a manner that does not jeopardise the goal of restoring confidence. If a member country is unable to cover the capital requirements of

... up to
mid-2012

Box 4.2

CAPITALISATION IN THE EUROPEAN BANKING SYSTEM

In order to determine the European banking system's capitalisation needs, the European Banking Authority (EBA) initially gathered information from 70 European credit institutions¹ (including 13 from Germany) on their portfolios of bonds issued by and loans granted to governments of the European Economic Area as at 30 June 2011. On the basis of these data, the institutions were asked to value their exposures to these governments at current market prices. They were asked to factor in fair-value losses on sovereign exposures in the categories "available for sale", "held to maturity" and "loans and receivables" as well as the market value as at 30 September 2011 of their "held for trading" and "fair value option" positions.

The definition of core tier 1 capital corresponds to the one that was used in the EU-wide stress test in the summer of 2011. This means that core tier 1 capital should fulfil the same 14 quality criteria that are also required of this capital category by Basel III. In line with the transitional arrangements of Basel III, deferred tax assets and minority interests in the regulatory capital of subsidiaries are also recognised; under Basel III/CRD IV, these items do not have to be deducted from core tier 1 capital until 2014-2018.

After including the market valuation of sovereign positions, the EBA set a minimum core tier 1 ratio of 9% of risk-weighted assets (RWA). Based on the core tier 1 capital level as at 30 June 2011, major changes in the capital (for example, capital measures conducted) and the RWA (say, in the form of portfolio restructurings) in the third quarter of 2011 were also incorporated into the analysis of the capital requirement. A capitalisation shortfall may therefore ensue both from an initial core tier 1 ratio of below 9% and impairments of sovereign bonds.

According to preliminary EBA calculations, the resulting capital requirement of the credit institutions in Europe

amounts to €106.4 billion, of which €5.2 billion is accounted for by German banks. These figures are, however, only a provisional approximation of the capital requirement that will finally be set on the basis of the audited quarterly financial statements as at 30 September 2011. In addition to earnings performance in the third quarter of 2011, the need to take account of the effects of the introduction of CRD III on individual institutions is likely to push up the figure.

The EBA's rules require the institutions to meet the determined capital requirement by 30 June 2012. Banks with a capitalisation need will agree a plan with their national supervisory authorities on how they intend to meet the higher capital requirements. An excessive restriction of lending is to be avoided, so as to limit potential repercussions for the real economy.

Capital is to be increased primarily through retention of profits and contributions of private investors (capital increase by existing shareholders or share offer via the capital market). Part of the capital requirement can also be met by the issuance of hybrid capital, ie through private contingent convertibles that fulfil the EBA's strict approval requirements. If such measures turn out to be insufficient in exceptional cases, public capital injections will be provided by the member state concerned. For Germany this would raise the specific question of whether to reinstate the Financial Market Stabilisation Act (*Finanzmarktstabilisierungsgesetz*). Given that scenario, issues relating to competition law would also be relevant, however, owing to the EU rules on state aid. Only if a member state is unable to meet its banking system's recapitalisation requirement through its own efforts is recourse to resources of the European Financial Stability Facility (EFSF) rescue fund possible in the final instance, subject to the prescribed conditions and stipulations.

¹ These were the participants in the July 2011 EBA stress test, with the exception of some smaller institutions with a national focus.

its banking system using its own resources, it can turn to the European Financial Stability Facility (EFSF) for funds, subject to the prevailing terms and conditions. The second element mentioned above, namely the underwriting of longer-term bank liabilities, should be given a uniform shape within the EU. When determining its exact design, the European Commission should work in tandem with the EBA, the European Investment Bank (EIB) and the ECB.

Urgent need for consolidation of public finances

The package of measures is designed to make the European banking system more resilient. Given the high degree of interconnectedness with the sovereign debt crisis, the sustained consolidation of public finances in the countries affected is and will continue to be the top priority.

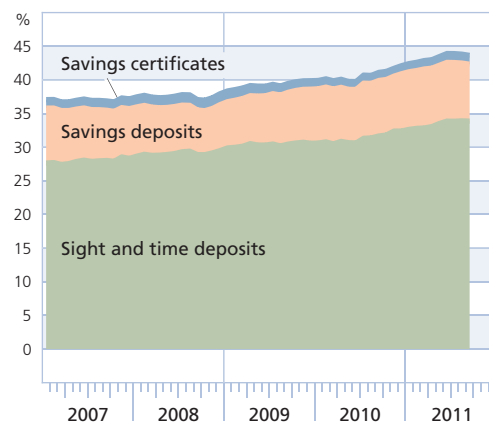
Major challenges ahead in refinancing

Customer deposits have grown, but margins on time deposits squeezed

Since the onset of the crisis in July 2007, German banks have increasingly focused on customer deposits, which have proven a stable source of funding. Conversely, interbank liabilities have fallen significantly. By August 2011, customer deposits had risen to just under 44% of total assets (see Chart 4.10). At the same time, fiercer competition for customer deposits depressed margins. After the crisis had begun, margins narrowed both for sight deposits and time deposits. While margins on savings deposits recovered in the years 2009–10, there appears to have been a permanent deterioration in margins on time deposits, which is hurting banks' interest income.

Chart 4.10

PERCENTAGE OF CUSTOMER DEPOSITS IN GERMAN BANKS' LIABILITIES*



* Adjusted for derivative financial instruments held for trading.

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Over the next two years, 41% of all outstanding German bank debt securities will mature (excluding Pfandbriefe and issues by special-purpose credit institutions).¹⁶ In an international comparison, Germany is therefore one of the countries with the highest funding needs in the banking sector. The percentage of bonds with a relatively short remaining time to maturity has increased over time. However, this is no indication of growing maturity mismatches. One-off statistical effects need to be borne in mind. Before the crisis, credit institutions transferred a lot of business to special-purpose vehicles, which meant that these activities were no longer included in

High funding needs

¹⁶ See Deutsche Bundesbank (2011d), p 50* Table VII 3. Volume of other bank debt securities: €619 billion, of which €253 billion will mature in the next two years.

Box 4.3

THE GERMAN BANKING SYSTEM'S US DOLLAR FUNDING GAP

In contrast to other European banks, German banks recorded an excess of US dollar-denominated assets vis-à-vis the corresponding liabilities of US\$61 billion at mid-2011.¹ The chart on page 57 shows that the US dollar funding gap has decreased significantly since the end of 2009 because US dollar assets declined more strongly in relation to liabilities; it has expanded again of late, however.

Net capital exports from Germany to the United States are reflected in the gap. For example, German enterprises need US dollar loans from their banks for their investments in the United States, which in turn boosts the US dollar assets of the banks. Furthermore, German financial institutions use the size of the US capital market to diversify their loan portfolios. A further reason for the US dollar imbalance is the significance of the US dollar as leading currency. Direct investment in emerging market economies and transactions in certain sectors (eg the oil trade) are typically settled in US dollars.² Direct US dollar funding on the US capital market would entail high costs for most German banks. A portion of the US dollar assets is therefore funded through euro liabilities, and this currency mismatch gives rise to an exchange rate risk for German banks. However, as the Bundesbank's market risk stress tests show, German banks

have only a small exposure to foreign currency risk. This implies that the financial institutions hedge against the currency risk that arises from the US dollar funding gap.

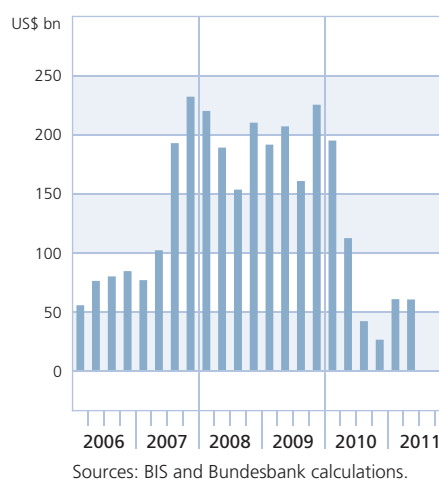
In practice, a cross currency basis swap (CCBS) is hedged as follows. A German bank receives the US dollar amount it requires from an American bank against payment of a euro amount according to the exchange rate. Interest payments on the amounts are exchanged every quarter during the lifetime of the contract. The German bank thus receives an interest payment according to the euro LIBOR rate from the American bank, whilst the latter receives the US dollar LIBOR rate plus a premium from the German bank. Upon maturity both banks exchange the nominal value again, at the same exchange rate as at the beginning.³ The premium payable can be seen as the price for US dollar liquidity. Arbitrage possibilities should basically ensure that this premium is close to zero. In actual fact, CCBS were close to the US dollar LIBOR rate until the onset of the crisis. At the end of 2008, however, European market participants were willing to pay very high premiums for US dollar liquidity. Although the CCBS spread is now far removed from the peaks seen at the end of 2008, the recent rise to 70 basis points indicates significant tensions in the market.

¹ See External position data of German banks and BIS international banking statistics as at the second quarter of 2011. — ² See M Bolders and M Wargers (2011), Management von Währungsrisiken – warum Dollar-Funding deutschen Banken zunehmend Stress bereitet, Zeitschrift für das ge-

samte Kreditwesen Vol 64/9, pp 438–443. — ³ See N Baba, F Packer and T Nagano (2008), The spillover of money market turbulence to the FX swap and cross-currency swap markets, BIS Quarterly Review, March 2008. — ⁴ See Estimates on the basis of the external position of the German banks, as at

In addition to risks arising from the currency mismatch or hedge transactions using CCBS, risks stemming from maturity transformation should also be taken into account. A considerable portion of long-term US dollar assets is not funded through long-term US dollar liabilities.⁴ From a financial stability perspective, the very short-term funding through institutional investors is especially significant, as in phases of increased market tensions it is subject to high volatility. According to Bundesbank information, at the end of June 2011, 15 large German banks had US dollar wholesale liabilities of US\$353 billion in total with a maturity of less than eight weeks.⁵ Prolongation could become more difficult for unsecured funding in particular. At US\$180 billion, it constitutes around half of total wholesale liabilities and thus exceeds the German banks' US dollar liquidity reserve by US\$64 billion. On the whole, however, German banks still have good access to short-term US dollar liquidity. By contrast, access to medium-term and long-term US dollar funding is becoming more difficult, in particular for unsecured transactions.⁶ Regulatory changes in US money market funds further intensify the excess of short-term funding. The significance of these money market funds for the funding of most German banks is relatively small, however.

GERMAN BANKS' US DOLLAR FUNDING GAP⁷



Additional precautions can help to limit the risks from the US dollar funding gap. Firstly, German banks should also take shocks in the US dollar market into consideration in their contingency funding plans. Secondly, cross-border collateralisation standards for repo transactions can stabilise wholesale markets. On the supervisory side, reporting would need to be extended to include – over and above information that is already available – data on maturity mismatches and concentrations of counterparties in respect of US dollar assets and liabilities.

June 2011. Long term is defined here as a maturity of more than one year. — ⁵ See Deutsche Bundesbank's cross-institutional request for information. Reporting date: 30 June 2011. Wholesale funding refers to funding through institutional counterparties, eg large banks, money market funds, enter-

prises etc. — ⁶ See Deutsche Bundesbank's weekly liquidity calls, as at October 2011. — ⁷ Assets denominated in US dollars minus corresponding liabilities of German domestic banks, foreign branches and subsidiaries.

banking statistics. During the crisis, banks were forced to take the special-purpose vehicles back on to their balance sheets, which caused what appeared to be a sudden increase in liquidity risk, which had, in actual fact, existed long beforehand. The offloading of risky assets to resolution agencies is now reversing this effect for individual banks.¹⁷

Structural imbalance in US dollar funding

US dollar funding gap getting smaller...

Recently, concerns have been raised about growing risks in funding the US dollar-denominated assets of European financial institutions. In the run-up to the financial crisis, the German banking system's net US dollar exposure had risen sharply. Since the end of 2009, the net US dollar position has started to decline again. Nonetheless, there remains a considerable US dollar funding gap; there were US\$61 billion more US dollar-denominated assets than liabilities in the second quarter of 2011.¹⁸ This gap implies exchange rate risk unless banks are hedged, for which they rely on the smooth functioning of the US dollar swap markets.

...but risks must still be contained

In order to supply banks with US dollar liquidity during the crisis, bilateral swap lines were established between the Eurosystem and the US Fed in December 2007. While these swap lines were at times no longer in use, individual banks in the euro area have since August 2011 again been bidding for US dollar liquidity in the one-week tenders. In addition, the ECB is offering three US dollar liquidity-providing operations with a maturity of three months over year-end, which have not been used much to date. Additional precautions such as

emergency funding plans and cross-border collateralisation standards for repo transactions would also be suitable instruments to limit the risks arising from the US dollar funding gap (see Box 4.3 on pages 56 and 57).

Interest rate levels and capitalisation affect interest expenditure

Empirical estimates for the large German banks show that interest expenditure and income depend strongly on short-term interest rates, with effects on expenditure and income virtually cancelling each other out.¹⁹ At smaller banks, by contrast, interest expenditure and income are less balanced. These banks issue long-term loans and receive short-term customer deposits, and deliberately leave a maturity gap in order to earn from maturity transformation.²⁰

Smaller banks with maturity gap

A key factor in banks' interest expenditure is the yield curve for risk-free bonds; German government bond yields are frequently used as the benchmark. The latter have dropped sharply since the spring of this year, both for short and long maturities, and marked new historic lows in the autumn of 2011.

Reference rate has fallen

Investors demand a yield spread over risk-free interest rates for investments in risky enterprises. Additional capital makes banks safer, which is reflected in a lower risk premium in

More capital causes risk premium to drop

¹⁷ See Deutsche Bundesbank (2011b), pp 26–27.

¹⁸ See external position of German banks and BIS international banking statistics as at 2011 Q2.

¹⁹ See Deutsche Bundesbank (2010), p 91. If short-term rates rise by 1 percentage point, interest expenditure and income will rise by 38 basis points and 37 basis points respectively the following year. The long-term effect is 72 basis points and 79 basis points respectively.

²⁰ See C Memmel (2011), p 282 ff.

the interest they pay to borrow funds. For large German banks, this correlation between interest expenditure and the capital ratio can be quantified using a regression estimate.²¹ This shows that interest expenditure in relation to total assets falls by 16 basis points for a 1 percentage point increase in the capital ratio. However, this effect is much smaller for small and medium-sized banks, namely 2 basis points per 1 percentage point rise in the capital ratio. Further strengthening the capital base should therefore have a positive impact on banks' funding costs. This appears particularly important given that haircuts on government bonds issued by euro-area countries with large risk premiums may weigh on capital.

Consistent business trend for insurance companies

Insurers benefiting from upswing

The economic upturn in 2010 and households' high propensity to save have led to an improvement in the financial situation of insurance companies and strengthened the sector's resilience. In 2010, German primary insurers were able to expand their premium income by just over 4% year on year to around €179 billion. This increase in premium income was due above all to additional revenue generated in life insurance (6%) and health insurance (around 6%). Premium income in non-life insurance grew by just under 1%.²²

High volume of single premiums

German life insurers are of particular significance when analysing financial stability owing to their high premium and investment figures. At the end of 2010, they held capital

investments to the value of €732 billion and generated just over €87 billion in premium income. The gain of just over 7% in premiums was due primarily to a marked increase in single premiums, while the volume of regular premiums remained virtually unchanged.²³ Although the growth in single premiums of just under 34% was considerably weaker than in the previous year, the volume of single premium contracts (around €26 billion) still accounted for almost 30% of total premium revenue in 2010. Most single premium business is free from destabilising effects. However, this does not hold true for capital redemption operations²⁴ as they are more volatile and are likely to be extremely sensitive to changes in the interest rate environment. If the volume of this business continues to rise, this could have a negative impact on financial stability (see Box 4.4 on page 61). At the current end, however, companies are tending to expect the expansion in single premiums to end or possibly even to decline.²⁵

Higher investment income

Life insurance companies saw a further improvement in their investment income in 2010. Whereas they achieved a net return on invest-

Rise in net return in 2010

²¹ See Deutsche Bundesbank (2010), p 91.

²² See German Insurance Association (Gesamtverband der Deutschen Versicherungswirtschaft e.V. or GDV) (2011c), Table 1: life insurance including Pensionskassen and pension funds.

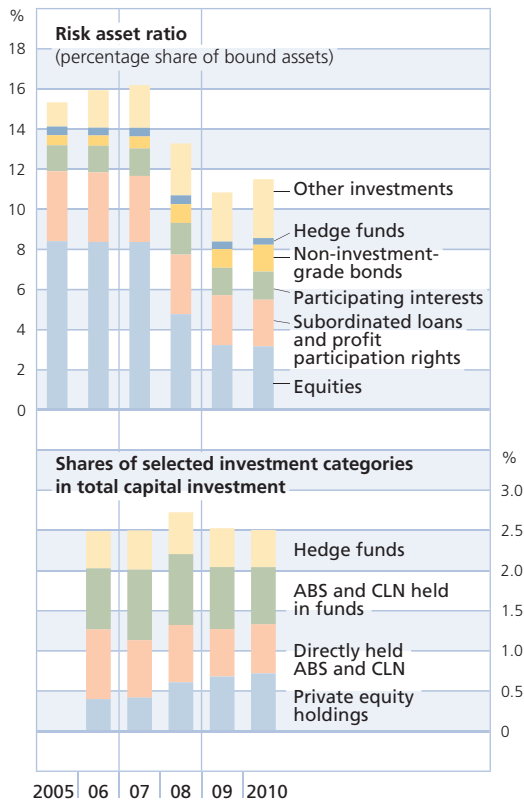
²³ See Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht or BaFin) (2011a) and GDV (2011c), Table 26. Excluding Pensionskassen and pension funds. In 2010, these German life insurers generated around 49% of the premium revenue and held around 63% of the total capital investments of all German primary insurance companies.

²⁴ Capital redemption policies are structured in the same way as conventional endowment life insurance policies but without a risk component.

²⁵ See M Wolgast and W Buttenböck (2011), p 7 f.

Chart 4.11

GERMAN LIFE INSURERS' CAPITAL INVESTMENTS



Source: BaFin.
DEUTSCHE BUNDESBANK

ment of 4.18% in 2009, this figure climbed to 4.27% last year. It has not yet reached its pre-crisis level, however.²⁶ This recovery is partly attributable to the more favourable stock market developments in 2010. In terms of financial stability, however, it remains to be seen whether this recovery will be sustainable against the backdrop of a renewed fall in long-term interest rates for prime borrowers and lower stock market prices.

The German Federal Ministry of Finance has responded to the persistent low-interest rate environment by lowering the maximum technical interest rate from 2¼% to 1¾%. This will apply to contracts concluded after 31 December 2011. It is possible, therefore, that anticipatory effects may lead to a greater volume of life insurance contracts with a guaranteed return being concluded up to the end of 2011, followed by a corresponding slump in early 2012. An analysis of previous changes suggests that such anticipatory effects are to be expected, although the maximum technical interest rate is only one of many factors that impact the demand for life insurance. Historically, amendments to tax legislation have been of greater relevance. Conventional life insurance policies with a guaranteed return *per se* are likely to become less attractive. Products without a guaranteed return, for example unit-linked life insurance policies, could benefit from this development.

Lower maximum technical interest rate...

On a market average, the current return – the profit participation share which insurance companies grant their customers – is 4.08% across all tariffs and generations at present and thus 11 basis points down on the year.²⁷ Insurance companies have, therefore, evidently – as already predicted in the model calculation of the impact of a protracted phase of low interest rates set out in last year's *Financial Stability Review* – responded to the low interest rates in the capital markets and reduced their payments to customers.²⁸

... and current return

²⁶ See GDV (2011b), p 29.
²⁷ See Assekurata (2011), p 22 f.
²⁸ See Deutsche Bundesbank (2010) as well as A Kablau and M Wedow (2011).

Box 4.4

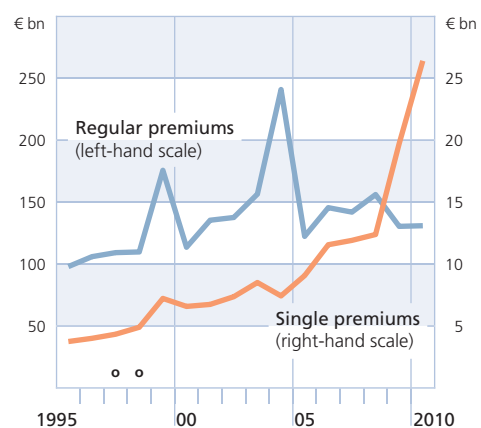
RIISING VOLUME OF SINGLE PREMIUMS AMONG GERMAN INSURERS

For some time now, a trend has been emerging in the life insurance market towards more single premiums, while new business in regular premiums has remained at a relatively constant level.¹ Single premiums, at a current volume of more than €26 billion, now account for around 30% of the total premium revenue (just over €87 billion) generated by German life insurers.² The growth in single premiums over the past decade raises the question of whether insurance companies are tending to move away from their conventional business model geared towards constancy and have made themselves more dependent on volatile components. This is not the case, however, as borne out by an analysis of the constituent parts of the single premium segment.

Annuities and pension insurance make up by far the largest share of single premium business: in 2010, almost every second euro was netted by this single premium position. Although the range of fluctuation in this position is relatively wide over time, in terms of financial stability it is free from destabilising effects as this type of business is very similar to that of conventional life insurance. The only difference is that these annuities and pension insurance policies begin immediately rather than after several years or decades, as is the case in regular premium business. Similar developments can be seen in unit-linked endowment insurance and unit-linked annuities, whose share of single premium business has increased from close to 0% in 1995 to just over 7%.³ The same is also likely to be true for endowment insurance and all kinds of group insurance.⁴ Single premiums are often recorded for state-subsidised "Riester" private pension plan contracts and increases in insured amounts in contracts attributable to regular premium business. This is likewise unproblematic in terms of financial stability.

The strongest growth in single premiums was recorded in capital redemption operations,⁵ the volume of which expanded to around €4.4 billion up to the end of 2010.⁷

GERMAN INSURERS' TOTAL PREMIUM AMOUNT⁵



Source: GDV.

Capital redemption operations are more volatile than most forms of single premium business and are likely to be sensitive to changes in the interest rate environment. This is reflected, *inter alia*, by the significant contraction in the share of such operations in total single premium business from just over 24% to just under 17%. One reason for this is likely to have been a reduction in insurance companies' product supply, not least in response to the action taken by BaFin to enhance protection for existing customers.⁸

All in all, single premium business can be considered to be quite unproblematic from a financial stability perspective, with the exception of volatile capital redemption operations. Companies' risk management systems should monitor the volume of such business.

○ As per 1 January 1998, a major insurance portfolio was transferred from a non-member company to a member company. The 1997 reference figures were adjusted accordingly. — **1** With a single premium, the policyholder pays a single, once-only premium for the entire period of insurance cover when the contractual relationship commences. — **2** See German Insurance Association (Gesamtverband der Deutschen Versicherungswirtschaft e.V. or GDV), Statistical Yearbook of German Insurance 2011, September 2011, Table 26. — **3** See GDV, Die deutsche Lebensversicherung in Zahlen 2010/2011, June 2011, p 10 f, supplemented by source enquiry. — **4** In group insurance, a large group of people are covered by one policy. The framework contract is

concluded by eg an employer, the insured individuals are the employees. — **5** The total premium amount is the sum of all premiums to be paid over the premium payment period laid down in a contract. — **6** This position also includes tontine insurance, which is a special form of annuity. Capital redemption policies are structured in the same way as conventional endowment life insurance policies but without a risk component. The calculation involved is based solely on the interest rate and costs; biometric data are not included. — **7** See GDV, Die deutsche Lebensversicherung in Zahlen 2010/2011, June 2011, p 10 f, supplemented by source enquiry. — **8** See also Deutsche Bundesbank, Financial Stability Review 2010, November 2010, p 94.

The average guaranteed return in German life insurers' portfolios has fallen slightly of late.²⁹

Little change in risk assumption

Manageable risks from European government bonds

A higher net return on investment could also be the result of assuming greater risks, which would have to be assessed critically in terms of financial stability. Recently, however, there has not been a trend towards greater risk assumption in the investment portfolio of German life insurance companies. Quite the opposite: insurers have reduced their investments in riskier instruments over time.³⁰ Although the risk asset ratio increased slightly and reached a level of 11½% in 2010, it still remained well below the maximum permissible value of 35%. The share of higher-yielding and riskier investment categories, such as hedge funds, private equity holdings, asset-backed securities (ABS) and credit-linked notes (CLN), remained virtually unchanged year on year (see Chart 4.11). German insurance companies also hold claims vis-à-vis euro-area countries that have come under pressure in the financial markets. However, the available data on these insurers' financial strength suggest that any losses would be manageable.³¹ Exposures to the countries concerned make up only a very small part of the total capital investments of all German primary insurers, which were reported to be around €1,183 billion in June 2011.³²

Stress tests verify stability

In the summer of 2011, BaFin conducted a stress test for German insurers using a balance sheet cut-off date of 31 December 2010 in order to examine the impact of a stock market slump.³³ Overall resilience was found to be stable. All life insurers and health insur-

ers passed the test once again, while fewer non-life insurers and Pensionskassen than in the previous year failed to meet the minimum capital requirements.

At the European level, a mixed picture of insurance companies' resilience emerges. The European Insurance and Occupational Pensions Authority (EIOPA) has conducted its second European insurance stress test. All in all, the European insurance sector proved to be relatively robust. Under the most severe scenario, 10% of the participating European insurance companies would fail to meet the Solvency II minimum capital requirements.³⁴ A separate scenario focusing on sovereign risk revealed that just under 5% of the insurers would fail to fulfil the minimum capital requirements.³⁵

Mixed picture across Europe

List of references

Assekurata (2011), Marktstudie 2011: Die Überschussbeteiligung in der Lebensversicherung, January 2011.

²⁹ The current maximum technical interest rate of 2¼% applies only to new contracts. The share of contracts with a guaranteed technical interest rate of 4% fell to below 25% of the industry's portfolio in 2010. In the preceding years, almost 30% of the industry's portfolio still bore a rate of 4%. Nevertheless, the average guaranteed return is still falling only gradually. See Assekurata (2011), p 73 ff.

³⁰ See GDV (2011a).

³¹ For further information, see the section entitled "Sovereign debt a central risk factor" on pp 17–28 and Table 2.3 on p 27.

³² See BaFin (2011b).

³³ 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 (2011c), p 5.

³⁴ The adverse scenario assumes, inter alia, a marked decline in interest rates (–125 basis points for maturities of up to 3 months and –62.5 basis points for longer maturities) as well as a slump in both the stock market (–15%) and real estate prices (–25% for commercial property and –11.6% for residential property). See European Insurance and Occupational Pensions Authority (2011a).

³⁵ In this scenario, an increase in spreads was assumed for the different countries concerned. See European Insurance and Occupational Pensions Authority (2011b).

BaFin (2011a), Kapitalanlagen der Erstversicherer – 4. Quartal 2010, see www.bafin.de.

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M Wolgast and W Buttenböck (2011), Branchen im Blickpunkt: Die Versicherungswirtschaft, Institut für Wirtschaftsforschung an der Universität München, Sonderdruck aus ifo Schnelldienst Nr. 6, March 2011.

Regulatory framework to contain systemic risks

Three approaches are currently shaping the advancement of the institutional and regulatory framework for the financial system. First, the risks created by systemically important financial institutions (SIFIs) must be curbed. To this end, SIFIs have to strengthen their loss absorbency capacity. Furthermore, the way has been paved for the introduction of internationally compatible resolution regimes which will allow SIFIs to exit the market in an orderly fashion. Second, liquidity will be the dominating issue in banking regulation over the years to come, and the rules will have to take systemic aspects into account as well. Third, the struggle for greater transparency and a stable infrastructure must continue. This challenge lies in constantly adapting to changes brought about, for instance, by developments in the shadow banking system; by market-moving financial instruments, such as credit default swaps; or by new trading techniques, such as high frequency trading. Financial stability requires sufficient transparency, a sound infrastructure and well-informed supervisors across the whole process chain of front and back office. Macroprudential policy has to address all of these issues and must also be functional at the national level. In order to achieve this, the objectives must be defined, a legal institutional framework has to be created, and instruments and competences have to be determined.

Financial sector reforms must continue and macroprudential oversight must commence

Important groundwork has been laid with a view to advancing and decisively improving the institutional and regulatory framework of the international financial system. Basel III represents an extensive reorganisation of the international capital and liquidity rules for credit institutions and will considerably strengthen the resilience of the banking sector. Now it is a matter of implementing the new regulatory framework in a timely and globally consistent manner. In institutional terms, the foundation of the European Systemic Risk Board (ESRB), which started work at the beginning of 2011, represents a key step on the road to functioning macroprudential oversight.

Basel III and ESRB as the basis

Special rules for systemically important financial institutions

Systemically important financial institutions (SIFIs) are so big, complex and interconnected, and offer services that are so difficult to substitute, that their collapse can have an impact on the entire financial system. This is why they have so far been able to count on being bailed out by public funds. However, this implicit government guarantee distorts competition as it gives such institutions an unfair competitive advantage over smaller, non-sys-

SIFIs enjoy implicit government guarantee

temically important institutions in terms of refinancing options on the capital markets. Furthermore, it can entice SIFIs to take greater risks and can have detrimental consequences for the taxpayer in the event of a crisis. Solving the SIFI problem therefore constitutes the litmus test of the international reform agenda. The two central approaches in this regard are, first, to strengthen loss absorbency capacity and, second, to introduce suitable recovery and resolution procedures. A corresponding framework developed by the Financial Stability Board (FSB) was adopted at the Cannes G20 summit.¹

Capital surcharges for SIFIs

From 2016 onwards, SIFIs will be required to increase their loss absorbency capacity beyond Basel III provisions, which will take the form of a graded capital surcharge. The specific amount of these additional capital requirements will be determined on the basis of the respective institution's systemic importance. The surcharges applied will presumably be between 1 and 2½ percentage points. Only core tier 1 capital, which is a particularly good buffer to cover any losses, will be required initially.²

SIFI concept to be extended

This requirement will initially apply only to a group of 29 global systemically important banks (G-SIBs).³ The Basel Committee on Banking Supervision (BCBS), in close cooperation with the FSB, has developed a methodology which can be used to measure a bank's systemic importance. In the medium term, it is planned that this concept will be extended to other SIFIs. This will include, for instance, financial institutions which are systemically important at the national level rather than at the international level. Furthermore, there are also

plans to include other financial market players, such as insurers, financial market infrastructures and non-bank financial institutions.

Enabling the recovery and resolution of SIFIs as well

The increased loss absorbency capacity of SIFIs is forcing their owners to take greater responsibility for their actions. Furthermore, it puts a price tag on the implicit government guarantee and consequently reduces the misguided incentives to take excessive risks. The abolition of the implicit government guarantee is, however, a *sine qua non* of a fundamental solution to the SIFI problem. Systemically important institutions, too, must be able to exit the market without posing a serious threat to the proper functioning of the financial system if they make strategic mistakes or are inefficient.

SIFIs must be able to exit the market in a system-compliant manner

Special insolvency laws for the financial sector make it possible to force ailing financial institutions to be restructured or resolved, irrespective of their size. Their objective is to create incentives for market-based solutions and to minimise the negative systemic implications of a resolution. Progress has already been made at the national level. In Germany, the Restructuring Act (*Restrukturierungsgesetz*) entered into force at the beginning of 2011. This act provides for a procedure for the restructuring of banks under private law while, at the same time, augmenting the rights of the Federal Financial Supervisory Authority

Restructuring Act in Germany

¹ See G20 (2011).

² See Basel Committee on Banking Supervision (2011).

³ Two are from Germany: Commerzbank and Deutsche Bank.

(BaFin), which has been given comprehensive powers to restructure and resolve banks. Furthermore, the act stipulates that the banking sector will be obliged to contribute to a Restructuring Fund in order to help defray the costs of stabilising the financial system.

resolution of a bank in such a way that systemically important units or functions can, as far as possible, be maintained without disrupting the market or without requiring public support.

Finally, measures should also be implemented to make it easier to resolve financial institutions. This could be in terms of the structure of a bank or of a group of banks, but also, particularly in the areas of information and payment systems, intra-group transactions as well as services purchased from external providers. *... as well as improved resolvability*

The implementation of these central elements for dealing with SIFIs will represent a step forward. At the European level, the European Commission is, in the near future, to put forward a legislative proposal regarding the design of a European framework for crisis management. *Commission proposal*

Key details of this resolution regime for financial institutions have to be worked out in the coming months, however. It is important to note that the introduction of an internationally valid framework will necessitate extensive changes in a number of countries. Given the significant differences which still exist between national financial systems, it is essential that a balance be struck between international convergence and national flexibility. Moreover, it is not just a question of redrafting the relevant legislation. The financial institutions themselves will also need to make certain adjustments to make it easier to resolve them. Looking ahead, it will be a ques- *Adjustments necessary in a number of countries*

Regime to be harmonised at the international level

National resolution regimes are, however, stretched to their limits when it comes to globally operating SIFIs. The respective national regimes must be compatible at the international level. This is one of the reasons that the FSB, in its SIFI framework, has agreed on the powers and tools that national resolution regimes must have. They include, in particular, the powers of intervention required of a resolution authority, as well as dealing with the contractual relationships of insolvent institutions, and will represent an international standard in future.⁴

Cooperation agreements, ...

In addition to strengthening national resolution regimes, bank-specific cooperation agreements must be reached between national supervisory authorities for global SIFIs. This cooperation should occur *inter alia* by means of crisis management groups, which would be set up within the framework of institutionalised supervisory colleges. However, also within the framework of this cross-border cooperation, it should be borne in mind that the ultimate competence and responsibility lies with the national authorities.

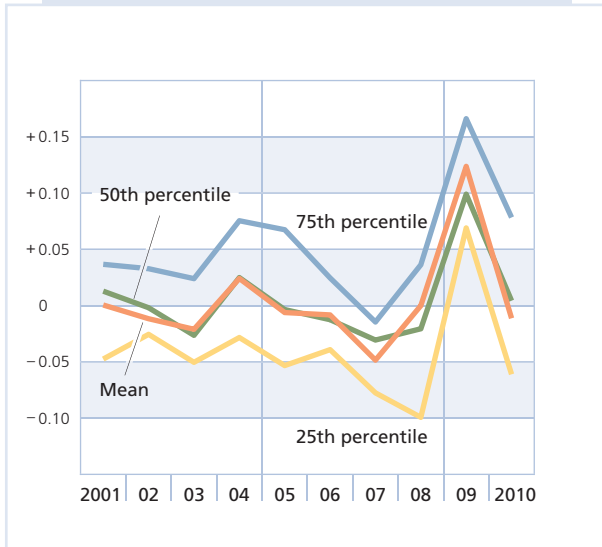
... recovery and resolution plans...

One important requirement is that global SIFIs draw up recovery plans, and their supervisory authorities develop bank-specific resolution plans, as these serve as an important crisis prevention instrument. The objective of these plans is to organise *ex ante* the recovery or

⁴ See Financial Stability Board (2011a).

Chart 5.1

FUNDING CONGRUENCE*



Sources: Company data and Bundesbank calculations. — * Calculated as the relative change for major German banks with an international focus. Positive values indicate an increase in funding congruence.

DEUTSCHE BUNDESBANK

tion of ensuring that such a framework for the recovery and resolution of SIFIs is actually put to use in the event of an emergency and that it also passes the acid test.

Liquidity at the heart of banking regulation

New liquidity ratios

Since the outbreak of the financial crisis, financial institutions have, in some cases, faced considerable problems sustainably ensuring their short to medium-term solvency. This was also due to sometimes excessive maturity transformation and insufficient liquidity buffers. Two new liquidity ratios, the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR), have been designed to help

minimise liquidity risks in future. The LCR has the purpose of guaranteeing a bank's solvency even under acute liquidity stress. In this context, institutions are required to hold a minimum stock of highly liquid assets to cover cumulative net cash outflows over a 30-day period. Aimed at forestalling medium to long-term distress resulting from excessive maturity transformation, the NSFR is calculated as the ratio of available stable funding to required stable funding under a persistent stress scenario.⁵

Overall, it is important for banks to accumulate as liquidity reserves a sufficient stock of assets which can be marketed reliably, even under stress conditions, and to strive to achieve more balanced maturity structures with respect to their assets and liabilities. With Basel III, both ratios were adopted in principle. Nevertheless, work is still ongoing on concrete definitions of the required liquid assets. Until they are implemented as mandatory minimum standards, individual areas of regulation, such as the criteria underlying the liquid assets in the LCR, need to be defined more accurately. Credit institutions should heed the lessons learned from the crisis and prepare for the upcoming regulatory requirements.

Preparing for upcoming regulatory requirements

Chart 5.1 shows the funding congruence for major German banks with an international focus. In a similar vein to the NSFR, the funding side (liabilities) is matched against the assets to be funded.⁶ The stability and maturity of the individual asset and liability items are

Hypothetical measure of maturity transformation...

⁵ See Basel Committee on Banking Supervision (2010a).

⁶ In terms of methodology, the concept in question is modelled on the NSFR, albeit in a simplified form.

weighted. The measure thus provides information about the percentage of less liquid assets that has stable funding. The growth rates in the chart illustrate the annual change in the measures.

... shows an improvement in 2009

Over time, relative annual changes are comparatively constant. In 2009, they entered positive territory for most financial institutions, which means an improvement in stable funding. This improvement is predominantly attributable to the decrease in the percentage of certain claims on financial institutions in favour of assets classified as more liquid (above all, claims on non-banks) and the increase in the percentage of longer-term liabilities with a term of over one year to the detriment of short-term liabilities.

Taking systemic aspects into account when regulating liquidity

Liquidity problems can endanger financial system

The planned microprudential regulation of liquidity bears the marks of lessons learned from the financial crisis, and its aim is to reduce liquidity risk at institutional level. However, systemic aspects are inherent in both liquidity regulation and liquidity risk, and these must be addressed, as multiple financial institutions can simultaneously encounter liquidity problems. This could then place severe restrictions on the market liquidity of banks' assets and, at the same time, on liquidity in funding markets, thus endangering the financial system as a whole. A lack of transparency about financial institutions' liquidity situation can provoke systemic problems and fuel the spread of a crisis.

It is essential to ensure that the incentives and restrictions set out in the liquidity regime do not themselves have any undesired side effects on the financial system, and indirectly on the real economy. Current calls for both ratios to be complied with at all times – ie also under stress – can encourage the hoarding of liquidity. Furthermore, the precise criteria for liquid assets influence their very liquidity. These criteria may greatly constrain markets for ineligible assets while conversely expanding markets for eligible assets significantly.⁷ The narrower the definition, the greater the impact of concentration risks. With regard to the real economy, the assumed usage of credit and liquidity facilities provided by banks could have unintended effects on non-financial corporations' liquidity management.

Effects of liquidity regime

The new liquidity ratios will also have implications for monetary policy. For instance, from the banks' perspective, liquidity rules can make longer-term central bank liquidity more attractive than short-term central bank liquidity and thus influence the implementation of monetary policy.

Implications for monetary policy

The challenge for the future liquidity regime will be to align a substantial reduction in the liquidity risks of individual financial institutions with these systemic aspects. Furthermore, interdependencies between liquidity and capital rules will need to be taken into consideration. The observation phase up to the planned implementation of the LCR (2015) and the NSFR (2018) should be actively used for this purpose.

Use observation phase

⁷ Assuming a constant market size, the liquidity of certain securities can fall significantly if a large quantity is held by banks on a permanent basis in order to fulfil regulatory rules.

Solvency II affects bank funding

New angle on insurers' solvency balance sheet

In addition to changes to banking regulations, changes to regulations in other sectors can also have an impact on bank funding. This is particularly true of the new solvency regime for the European insurance sector (Solvency II), which is scheduled for implementation from 2013 onwards. Switching from the current heavily formula-based Solvency I system to the risk-based Solvency II system will represent a major turning point for the European insurance sector. In particular, Solvency II means a new approach to the insurance corporations' solvency ratio which is to be drawn up to determine own funds. There are two fundamental changes vis-à-vis the *status quo*: in future, assets and liabilities will be marked to market; moreover, the required level of solvency capital will be calculated under a risk-based approach that derives the amount of own funds to be held from the risk content of the balance sheet items.

Insurers as lenders to banks

Overall, the risk-based capital requirements stipulated in Solvency II are to be welcomed. However, depending on the concrete implementation, they may also be a breeding ground for new systemic risks which could result, for example, from changing the relationship between the insurance and the banking sectors. Although capital ties between banks and insurers in Germany have declined since Allianz and Dresdner Bank parted ways, insurers are emerging in particular as lenders to banks and purchasers of banks' debt-financed instruments. In March 2011, German insurance corporations⁸ held €486 billion in bank debt, with German banks accounting for €382 billion. This includes investment via bank bonds,

direct loans and deposits as well as shares held by insurance corporations in collective investment undertakings in banks.

As the negotiations at EU level are still in progress, it is currently difficult to assess the concrete effects of Solvency II on the funding of German banks. Despite these limitations, based on the calibrations used for the fifth quantitative impact study (QIS 5), changes to insurers' investment behaviour cannot be ruled out. Using the standard formula⁹ for Solvency II increases capital requirements relatively sharply for longer durations and/or lower ratings of bank debt securities held by insurers. If yields are sufficient, insurers will continue to show an interest in short to medium-term preferential bank bonds, especially those with good credit ratings. Yet at the same time, they may invest more in EEA government bonds¹⁰ and AAA-rated covered bonds, and in the standard formula the capital charge on these instruments is zero or much lower than on unsecured bank bonds. However, larger insurance corporations with higher investment volumes typically do not use the standard formula to calculate capital requirements but their own internal models, which are likely to mitigate the possible distorting effects on insurers' investment decisions.

Higher investment in government bonds expected

In general, any risks arising as a result of interaction between Solvency II and Basel III also have to be taken into account. Both regula-

Interaction between Solvency II and Basel III

⁸ Life, health, damage and accident insurers as well as reinsurance corporations. According to the Bundesbank's credit register of loans of €1.5 million or more.

⁹ In line with banking regulations, insurers can determine capital requirements using either a harmonised standard formula or a suitable internal model approved by supervisors.

¹⁰ The European Economic Area (EEA) comprises the EU member states, Iceland, Liechtenstein and Norway.

tory approaches *per se* improve incentives for investing in government bonds and covered bonds. As a result, the portfolios of banks and insurance corporations may start to converge, which would make both groups vulnerable to similar risks.

Increased use of derivatives

With regard to the use of derivatives, it is possible that insurance corporations will turn to such instruments (eg interest rate swaps) more frequently than in the past, in particular to reduce the duration mismatch¹¹ that has to be backed by capital under Solvency II. This could increase their exposure to banks. In general, the risk sensitivity of capital requirements introduced with Solvency II should bring about a greater willingness to use derivatives to hedge against risks over and above a duration mismatch in order to reduce the level of capital required by supervisors.¹²

Insurers and banks interconnected

It is currently not clear which change in insurers' investment behaviour as a result of regulations will prove dominant. A (partial) withdrawal of insurers from bank funding could reduce interconnectedness between insurance corporations and banks, and thus reduce the potential for cross-sector contagion. There are indications that insurers have been trying for a number of years to diversify their portfolios more widely and avoid concentration risks. The percentage of German insurance corporations' investment in bank debt capital fell from 37% in 2002 to 34% in 2010. At 36 and 27 percentage points, respectively, German banks accounted for the lion's share in both years.

Create transparency, strengthen financial infrastructure

Creating transparency and ensuring the infrastructure is robust are perennial themes in the regulatory debate. The constant stream of innovations in intermediaries' business models, in products and instruments as well as in trading practices frequently makes it difficult to identify risks to financial stability, posing new challenges to the financial infrastructure.

Make shadow banking system subject to reporting requirements

The shadow banking system is not a new, autonomous part of the financial system. Instead, the financial system is considered from a new angle. Shadow banking is defined as a system of credit intermediation that involves entities and activities outside the regular banking system.¹³ The shadow banking system needs to be monitored and regulated as its credit intermediation entails similar risks to those inherent in bank lending.

Credit intermediation through shadow banking system

In no way does this new approach imply that the entities and activities ascribed to the shadow banking system have not been monitored or regulated to date. The shadow banking system also includes established intermediaries, such as money market funds. Nevertheless, any gaps in existing surveys and

Powers to determine reporting requirements needed

¹¹ There is a duration mismatch if assets and liabilities do not have the same interest-rate sensitivity, meaning that changes in market interest rates affect the value of assets and liabilities to different degrees.

¹² For information on the increased significance of derivatives under Solvency II, see Committee on the Global Financial System (2011), pp 39–41.

¹³ See Financial Stability Board (2011b).

loopholes in regulations need to be closed to ensure that systemic risks emanating from the shadow banking system are also covered and can be contained, if necessary. The FSB recommends granting supervisory authorities the power to impose reporting requirements. Monitoring needs to be based on more than just statistics as these are, for instance, available only after a certain time lag. In addition, it is very important to assess new developments in the financial system qualitatively.

German shadow banking system relatively small

Because the definition of banking activities in the German Banking Act is rather broad by international standards, the shadow banking system in Germany tends to be much smaller than in countries such as the United States, both in absolute figures and in relation to the regular banking system. However, German institutions may maintain close links with the shadow banking system in other countries. The crisis has shown that these cross-border activities can be extremely risky and impact on the German financial system. To safeguard financial stability and avoid regulatory arbitrage, an appropriate and internationally consistent oversight and regulation of the shadow banking system are desirable and needed.

Organised trading platforms for securities and derivatives

The financial crisis exposed the risks on the securities and derivatives markets and underlined the need for regulation. This concerns both specific front and back-office infrastructures as well as certain market practices (see Box 5.1 on pages 74 and 75).

Securities and derivatives can be traded either on organised trading platforms, ie exchanges and multilateral trading facilities, or over the counter (OTC).¹⁴ As OTC trading is intransparent on the whole, it is difficult to reliably assess the risks being taken by market participants. This largely nullifies market discipline and is another reason why the G20 has called for the migration of OTC derivatives trading to organised trading platforms.¹⁵ In addition, further consideration has been given, especially in the EU, to the idea of increasing transparency on securities and derivatives markets by extending (front and back-office) trade transparency requirements.¹⁶

Greater market transparency...

In principle, these measures to increase market transparency can help to make the financial system more stable, for instance by reducing information asymmetries and assisting market participants in their assessment of risk. However, in order to prevent negative liquidity effects, the design of these measures has to give adequate consideration to the underlying structure and organisation of the respective market. This includes factors such as initial liquidity, product complexity, market participants and transaction size, as well as whether the markets are order-driven or dominated by brokers.¹⁷

... aids assessment of risk

¹⁴ At present, the majority of derivatives and bonds, in particular, are traded OTC. By contrast, shares are traded predominantly on organised platforms, although a significant volume of these transactions also takes place OTC. Figures on OTC equity trading in Europe differ widely and fluctuate between 16% and 40%. See Association for Financial Markets in Europe (2011), p 2 ff as well as P Gomber and A Pierron (2010), p 13 ff.

¹⁵ All standardised OTC derivatives contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through CCPs by end-2012 at the latest. In addition, the contracts should be reported to trade repositories.

¹⁶ See European Commission (2011c), p 28 ff.

¹⁷ See M O'Hara (2001), p 4 f.

Destabilising trading practices?

Focus on short selling

In the wake of the financial crisis, criticism has been levelled at certain trading practices where the initiator benefits from falling prices, as they are said to potentially destabilise the financial system. Public debate is focusing on short selling – the sale of securities that the seller does not (yet) possess at the time of sale – but also other instruments, such as credit default swaps¹⁸ (see Box 5.2 on page 78).

Outright ban on short selling should be rejected

However, these trading practices and instruments serve important economic functions. Generally speaking, short selling increases liquidity in the market and is an important way of hedging against risks assumed. An outright ban on short selling should be rejected, although case-by-case restrictions during times of crisis could be advisable to safeguard the primary objectives of market integrity and financial stability.

Strengthen back-office infrastructures

CCPs reduce and channel risks

It is not just during trading that financial stability is at risk; it may also be jeopardised at the back-office level, ie when transactions are cleared and settled. Central counterparties (CCPs) reduce and channel these risks. The CCP interposes itself between the parties to a transaction and thus assumes the counterparty risk from the original bilateral contract relationship. The CCP also engages in netting whereby a participant's positive and negative transactions are offset; only the risk of the remaining net position is assessed. In addition, a CCP has a number of safeguards, such as risk-

based access criteria for direct participation, margin requirements and a guarantee fund for CCP participants.

The G20 has agreed to make the use of CCPs for OTC derivatives mandatory.¹⁹ Extending this requirement to other financial markets and instruments is worth considering. The use of CCPs for OTC derivatives trading is being supported by the G20's decision requiring all OTC derivatives transactions to be reported to central trade repositories. Setting up repositories is crucial for increasing safety and transparency for market participants and supervisory authorities. It makes it easier to identify how risk is spread across the system.

Use of CCPs to be mandatory for OTC derivatives

Central securities depositories (CSDs) are also an essential component of the back-office infrastructure. They play a key role in the financial system as they are required technically to issue securities and are also responsible for settlement and final custody. In 2011, the first steps have been taken towards harmonising the regulation of CSDs at EU level. The primary objectives are to create minimum requirements and to reduce operational risks by shortening settlement cycles.²⁰

Regulation of CSDs

¹⁸ See European Commission (2010).

¹⁹ Major progress in implementing this requirement has already been made in the United States under the Dodd-Frank Act. In the EU, the European Market Infrastructure Regulation (EMIR) proposed by the European Commission is currently under debate.

²⁰ See European Commission (2011a).

Box 5.1

HIGH FREQUENCY TRADING NEEDS RULES

High frequency trading (HFT) has played a major role in stock and currency markets in recent years. For regulators, supervisors and central banks, this raises the question of what impact HFT has on the functioning of the markets.

Over the past few years, the financial markets have witnessed an “algorithmic revolution” in the way in which shares, derivatives and currencies are traded on trading platforms. HFT is a class of algorithmic trading and refers to strategies that exploit time advantages to make profits within milliseconds by purchasing and selling financial instruments electronically – and therefore extremely quickly. The business model of HFT players aims at making profits on a very large number of transactions with comparatively small lot sizes. Most HFT programmes make their decisions without taking into account the real firm value or the value determinants of a currency.

HFT has now achieved a dominant position on the main exchanges. In 2009, its estimated proportion in the entire trading volume of shares amounted to around 70% in New York¹ and approximately 40% in Germany. For currencies it amounted to around 45% at a global level.² It should be noted that HFT primarily focuses on the 5% to 10% of the most liquid shares as well as on the most liquid currency pairs. Therefore the proportion of HFT in these instruments is significantly higher than the average for the market as a whole.

Some market participants and academic studies portray HFT as a guarantor of liquidity and a stabilising factor for trading. In recent years, for instance, a significant reduction has been observed in median bid-ask spreads. HFT players and stock exchange operators believe that owing to the liquidity it generates in trading, HFT results, on balance, in a noticeable improvement in market efficiency with regard to price discovery.

However, the events surrounding the flash crash of 6 May 2010 (an approximately 15-minute period of plummeting share prices and irrational volatility on the New York Stock Exchange) and the activities of HFT firms on that day demonstrated that high frequency trading on the markets does not have a solely positive impact. Extremely fast transactions and herding effects between the HFT players can result in existing stock market losses that do not originate from high frequency trading being drastically extended and amplified. In the short term, many shares deviated drastically from their prices at that time, without this movement being substantiated by new information. Most of the prices recovered after just a few minutes.

At the same time it became clear that the liquidity made available through HFT, which is one of the most important arguments in its favour, can suddenly dry up during difficult market phases. An increasing number of market participants regard the liquidity generated by HFT as “ghost liquidity” which disappears when adverse market

¹ See J Brogaard, High Frequency Trading and its Impact on Market Quality, 5th Annual Conference on Empirical Legal Studies Paper, November 2010. — ² See Bank for Interna-

tional Settlements, High Frequency Trading in the Foreign Exchange Market, September 2011. —

conditions occur and HFT firms withdraw from trading activities. In such a case, the liquidity would disappear at precisely the point at which it is needed most urgently.

From a regulatory perspective, HFT has proven to be not without its problems, not only in these rare but dramatic high volatility events but also in daily trading.³ Extremely fast HFT programmes can be misused in order to manipulate the markets and to gain an unfair advantage over slower investors. Furthermore, sending thousands of buy and sell orders can strain the transaction systems of trading platforms to such an extent that their functionality is impaired. Incorrectly programmed trading algorithms can trigger severe price fluctuation with erroneous orders. Overall, HFT is therefore not solely a positive factor for the market. It can also have considerable adverse effects that can jeopardise market integrity and efficiency, and can harbour risks for financial stability.

Over the last 12 months, several national and international institutions have begun to assess the need for regulation and supervision as well as suitable proposals on how this might be achieved. All regulatory considerations should be based on the idea that the transparency, integrity and efficiency of the markets must be ensured, while at the same time safeguarding financial stability. Risks must be identified and contained, but without unnecessarily impeding progress.

It is therefore important that the different strategies pursued by HFT firms are viewed independently of one another. Any form of regulation should aim at maintaining the advantageous aspects of those HFT strategies which have a positive impact on the market. Any strategies posing a form of market abuse must be prohibited.

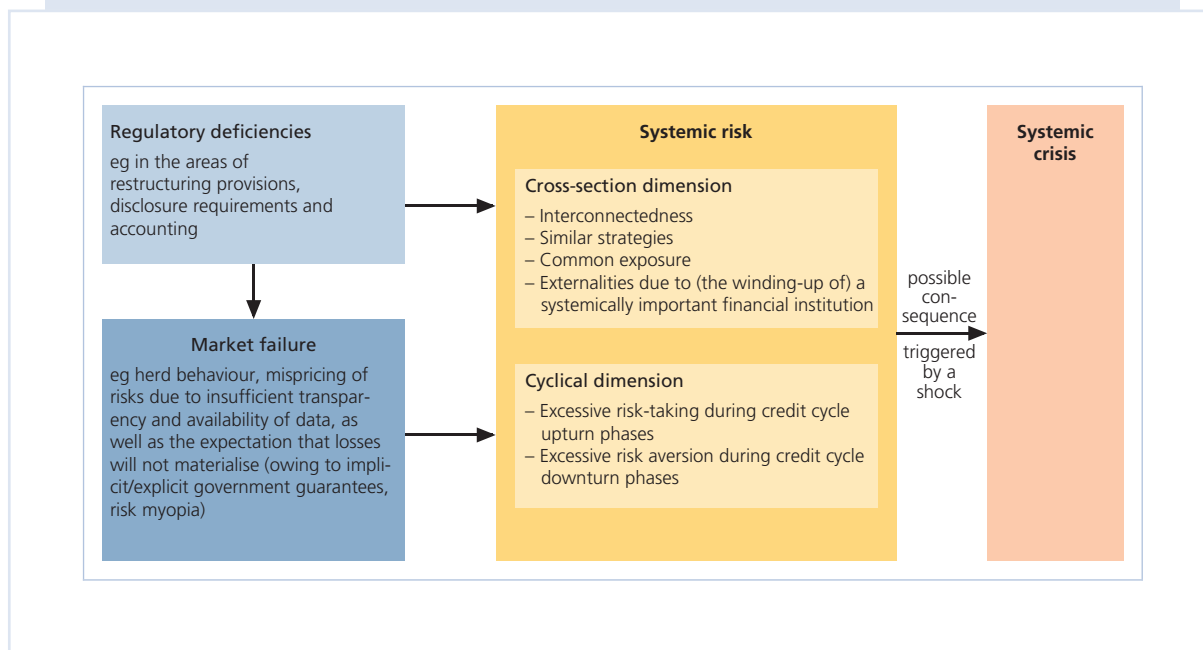
One possibility would be to introduce uniform standards for risk management systems for all high frequency traders and their prime brokers. Such a system should check each HFT order for errors and prevent incorrect transactions from the outset. In addition, a code of conduct for HFT could be established that expressly prohibits the use of certain HFT tactics that are considered unfair. The problem of sending vast numbers of orders, without any real intention of making a transaction, could be solved by limiting the number of orders per transaction, which would then be checked *ex post*. Harmonised regulations on the use of circuit breakers should also be considered at the European level.

The European Commission has put forward its proposals for an amendment to the Markets in Financial Instruments Directive (MiFID), which, among other things, envisages regulating HFT. The main aim is to reduce systemic risks and ensure the coexistence of HFT and traditional trading so that the allocation function of the market can be optimally fulfilled.

³ See A Haldane, The Race to Zero, Speech at the International Economic Association Sixteenth World Congress, July 2011.

Chart 5.2

SYSTEMIC RISK



DEUTSCHE BUNDESBANK

Making macroprudential oversight operational

Systemic risk and market failure

The containment of systemic risk is the primary operational task of macroprudential policy.²¹ Systemic risk typically arises from market failure, which is caused, or even abetted, by deficiencies in the framework (see Chart 5.2). To prevent market failure, adherence to the founding principles of the market economy – under which the potential returns are linked to the assumption of corresponding risk – must be ensured.

Cross-section and cyclical dimension

In terms of systemic risk, it makes sense to differentiate between a cross-section dimension and a cyclical dimension.²² The cross-section dimension arises from dependencies in the

financial system: interconnections between institutions, similar strategies and/or identical risk positions. This can lead to a rapid spread of risk, and potentially also to shocks. The cyclical dimension describes the change in the credit cycle from excessive risk-taking during economic upturns to extreme risk aversion during economic downturns. The active containment of both types of systemic risk, combined with constant surveillance and amendments to the framework, are intended to prevent systemic crises. To achieve this, macroprudential policy takes a medium-term approach.

²¹ For further lists defining and measuring systemic risk, see Deutsche Bundesbank (2011), pp 37–51 and Deutsche Bundesbank (2010), pp 117–118.

²² See C Borio and A Crockett (2000), p 1 ff.

*Interlinking with
microprudential
oversight*

To ensure comprehensive supervision of the financial system, macroprudential analysis and surveillance are to be closely interlinked with microprudential oversight. Ongoing supervision requires macroprudential information and assessments in order to be able to recognise and address the potential risk to specific institutions at an early stage.

Monitoring the European financial system: ESRB and national mandates

*ESRB has started
its work...*

The founding of the European Systemic Risk Board (ESRB), which started work at the beginning of 2011, represents a key step on the road to well-functioning macroprudential oversight at the European level. Important ESRB topics in 2011 were the connection between the sovereign debt crisis and the financing of the banking sector, potential contagion effects, stress tests and foreign currency lending.

*... and plays
a prominent
role in
cooperation*

In the context of the debate on the European regulatory framework – for example, in the European Commission draft on CRD IV/CRR²³ – the ESRB will be granted a special right of recommendation for macroprudential interventions and a prominent role in coordinating macroprudential policies. The ESRB will also be a key part of the expected safeguards designed to prevent abuse of the new national macroprudential discretionary scope, such as unfair competitive conditions.

*Advancement
of national
monitoring*

The institutional structure of macroprudential supervision in Europe will now be advanced at the national level. According to the principle of subsidiarity, the national macroprudential

authorities need to have the ability to proactively fend off the dangers to the financial system for two reasons. First, the greatest expertise in analysing macroprudential conditions is located at the national level. Second, the costs of a crisis are mainly borne by nations. Several countries have already enshrined macroprudential mandates in law.²⁴ Objectives have to be defined, instruments created and possible courses of action established. The necessary responsibilities also have to be assigned to the macroprudential authorities. The mandate must cover the entire financial system, which therefore means not only banks but also insurers, markets and financial infrastructures. At the end of 2010 the governing coalition in Germany presented the key points for the advancement of financial supervision and the structuring of the macroprudential mandate.

Structuring macroprudential mandates

There has been extensive international discussion about the requirements for macroprudential mandates.²⁵ International standards (best practices) for the definition and assignment of a macroprudential mandate have been gradually crystallising. The task can be performed by an individual authority or shared among several institutions. Because of their knowledge and expertise, central banks in particular should play a prominent role in the institu-

*Mandate
independence*

²³ See European Commission (2011b).

²⁴ In the United Kingdom, for instance, microprudential supervision and macroprudential oversight are combined within the Bank of England. France, the USA and other countries follow different approaches, which focus on the improved coordination of various institutions that in some cases have been reformed.

²⁵ See International Monetary Fund (2011a and 2011b, p 38); Bank for International Settlements (2011), p 49 ff, D Schoenmaker and P Wierdsma (2011), p 10 f.

Box 5.2

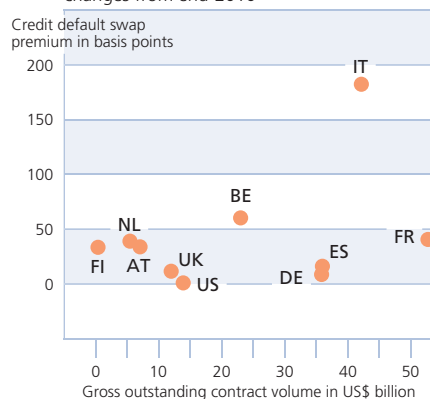
SYSTEMIC IMPLICATIONS OF CREDIT DEFAULT SWAPS

Determining the distribution of risk within the financial system is one of the key tasks of macroprudential analysis. Credit default swaps (CDS) are an efficient means of transferring credit risks rapidly and often in standardised form. According to the Bank for International Settlements, contracts with a gross notional amount of around US\$30,000 billion were outstanding at the end of 2010. This business has systemic implications. Balance sheet assets, for instance, no longer reflect actual risk exposure, which makes it difficult for both supervisors and market participants to assess the risk situation. Moreover, identifying the protection sellers is highly relevant in order to assess risk concentration and possible contagion channels in the financial system.

In recent months, market participants have increasingly concluded CDS transactions related to large industrial countries' bonds. There was, however, only a loose correlation between the expansion of market volume and an increase in premiums (see adjacent chart). The latter suggests a deterioration of the affected countries' creditworthiness. Yet, when interpreting the increase and comparing it to the corresponding bond yields, it must be taken into account that bond markets may currently be distorted by capital flows to traditional safe-haven assets and direct intervention by central banks. Aside from the direct price effect, the fact that retail investors are being squeezed out of the bond market might also play a role. In addition, current studies¹ show a high degree of concentration in the CDS market. Furthermore, market makers appear to be relatively slow in hedging large positions.

CREDIT DEFAULT SWAPS ON SELECTED SOVEREIGNS

As at 21 October 2011, changes from end-2010



Sources: DTCC, Markit and Bundesbank calculations.

These two aspects could, possibly in conjunction with counterparty risk, be distorting CDS pricing.

The separation of risk exposures and balance sheet exposure has far-reaching consequences for prudential data availability; additional information would be desirable.² In the context of the upcoming reform of the European Markets in Financial Instruments Directive (MiFID), the introduction of a trade transparency regime that would, *inter alia*, extend to CDS is currently planned. This would provide more transaction-level information both to supervisors and to the market. By contrast, more and more information on the structure of the CDS market is already being made available.³

¹ A group of around 14 banks occupies a leading position. See K Chen, M Fleming, J Jackson, A Li and A Sarkar (2011), An Analysis of CDS Transactions: Implications for Public Reporting, Federal Reserve Bank of New York Staff Report No 517. — ² See Committee on Payment and Settlement Systems and The International Organization of Secu-

rities Commissions, Report on OTC derivatives data reporting and aggregation requirements – consultative report, August 2011. — ³ A key source is the trade repository of the Depository Trust & Clearing Corporation (DTCC) in the USA. According to DTCC's own information, it covered around 98% of the global CDS market at the beginning of 2011.

tional arrangement of macroprudential policy and be given responsibility for autonomous macroprudential analyses. It should be noted that macroprudential measures – such as to restrict a (credit) boom – may well be both controversial politically and unpopular in the financial sector. Their effect is difficult to analyse and evaluate, especially because measures should be taken *ex ante*. The analysis requires ongoing assessment of macroeconomic developments, taking technological progress into account, and is therefore fraught with uncertainty. In order to accomplish objectives in the face of resistance and uncertainty, the holders of the macroprudential mandate need to be shielded from the influence of politicians and special-interest groups. To that end, under EU law the national central banks of the Eurosystem have been given the task of independently conducting measures which contribute to financial stability.²⁶

Transparency
towards the
public

Transparency towards the public and market participants is essential when assigning a macroprudential mandate, with regards to the structuring of the mandate, ie in terms of responsibilities and powers, as well as the objectives, independence and accountability of the macroprudential authorities. In addition, the activities, eg the political strategy, risk assessment and use of instruments, should also be retraceable. Therefore, macroprudential authorities need to be able to issue graded communications. This includes public appraisals of reports and analytical papers. However, formal communication instruments such as warnings and recommendations, which also allow sensitive information to be kept confidential, are also required. Both the literature and the ESRB design regard a comply-or-explain rule as suf-

ficient: the recipient of a recommendation must either comply with it or give reasons for not complying – possibly publicly.

Macroprudential instruments against systemic risks

An effective macroprudential policy requires a robust framework, suitable instruments for containing systemic risk and operational crisis mechanisms. A key part of the framework is a functioning competitive framework. It must be possible for all institutions to exit the market in an orderly fashion.²⁷ The substitutability of financial institutions requires appropriate market entry opportunities for suitable competitors. Moreover, the financial market should be transparent and financial transactions should be open to scrutiny to facilitate the market participants' control function and thereby reduce market uncertainty.

Functioning
competitive
framework

Direct macroprudential interventions serve primarily to contain systemic risk in its cyclical and cross-sectional dimension. This requires suitable instruments. Owing to the complexity of markets and intermediaries, systemic risk can arise in a wide variety of highly unpredictable forms. Therefore, it is not possible to create a conclusive list of specific threats and suitable instruments. This means that it is particularly important to constantly check and, if necessary, update the toolkit of instruments. To adequately and promptly counter stability dangers, the responsible macroprudential su-

Suitable
instruments are
required...

²⁶ See Article 127 (5), 130, Treaty on the Functioning of the European Union (TFEU).

²⁷ See also Special rules for systemically important financial institutions, pp 65–68.

pervisors require sufficient flexibility in the use of the instruments.

... to reduce systemic risks

Possible measures for reducing the cyclical components of systemic risk include not only time-varying capital and liquidity requirements but also collateral standards, the structuring of credit risk provisioning, and accounting standards. Additional capital charges for SIFIs and liquidity ratios to increase stable wholesale funding are being discussed in particular as instruments to counter cross-sectional systemic risk.²⁸ Measures and options that target systemic risks outside of the banking system should be developed too, however.

Use and dosage to be decided at national level

It would be desirable for conditions as well as criteria for macroprudential instruments to be harmonised at the European level in order to avoid jeopardising the single European financial market and to prevent national protectionism. The decision on the use and dosage of macroprudential instruments should be the prerogative of national supervisors, however.

Agreed reciprocity

The first macroprudential instrument to be created will be a countercyclical capital buffer, the main objective of which is to avoid the excessive credit growth that often arises in close conjunction with the build-up of system-wide risk.²⁹ The countercyclical capital buffer is scheduled to be introduced on 1 January 2016, to generally equal between 0% and 2½% of risk-weighted assets and consist of core tier 1 capital or other loss-absorbing capital components. The Basel Committee sees the deviation of the ratio of lending to the private sector to GDP (credit-to-GDP ratio) from its long-term trend (the credit-to-GDP gap) as the most significant indicator for measuring the

capital buffer. If necessary, further criteria for determining the amount of the buffer can be included. The agreed reciprocity is worthy of particular mention in this context. If, for example, Germany were to implement a buffer of 1% for claims on domestic borrowers, other countries must impose the same buffer on their banks for cross-border claims on German borrowers. The institution's buffer is therefore comprised of the claims-weighted average of the respective national buffers.³⁰

Establishing crisis mechanisms

Crisis management requires suitable mechanisms to stop contagion in the event of a crisis (known as "circuit breakers").³¹ The circuit breakers currently in existence are located mainly at regulated markets such as stock exchanges. The existence of circuit breakers can reduce incentive problems, stabilise expectations and prevent panic in the financial system *ex ante*. The prior creation of data availability and transparency in all relevant areas of the financial system can also play a part in reducing uncertainties.

Closing data gaps

Macroprudential authorities require broad access to data in all relevant areas of the financial system in order to exercise their mandate effectively. Besides banks, these areas include

Collecting additional data, ...

²⁸ See also Special rules for systemically important financial institutions, pp 65–68.

²⁹ See Basel Committee on Banking Supervision (2010b). Work currently underway on incorporation into European law (CRDIV/CRR), see European Commission (2011b).

³⁰ A voluntary reciprocity is being pursued in the EU for buffers above 2½%. The ESRB shall provide recommendations regarding claims on borrowers in non-euro-area countries that do not use the countercyclical buffer.

³¹ This can be rules concerning circuit breakers or the permissibility of short selling only during price rises (uptick rule), for example.

all relevant financial intermediaries and markets. The need for data stems from the need to identify risks and risk factors, to measure systemic risk, to estimate macroeconomic costs and benefits as well as to determine the best calibration for instruments. The existence of a sufficient body of data for crisis prevention and crisis management forms the conceptual centrepiece of a relevant FSB initiative on behalf of the G20.³² National authorities should also be given the power to collect additionally required data.

... to assess tail risks and interconnectedness

Information at the single-entity level and about counterparties is vital to be able to assess extreme risks (known as tail risks) and the level of interconnectedness. Potentially critical data gaps arise from insufficient information about the concentration of claims on countries and sectors as well as about market risk, funding risk, counterparty risk and contagion risk. The data must also be available at higher frequencies and levels of granularity and cover all relevant dimensions.³³

Ultimate risk in the foreground

Looking back on the crisis management over the past years, it can be observed that deficiencies in, above all, the timely and accurate information on leverage, maturity transformation or other funding risks proved to be critical. When considering risk, the “ultimate risk” perspective has increased in significance of late. It requires that, for instance, risk transfers which arise from group interconnectedness and guarantees, also be taken into account. Improved data collection can also impact positively on banks’ risk management and contribute to greater market discipline.

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³² See Financial Stability Board (2011c).

³³ Eg instruments, residual maturities and currencies.

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Overview | Bundesbank publications concerning financial stability

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FINANCIAL STABILITY REPORTS

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Financial Stability Review, November 2009

Financial Stability Review, November 2007

Financial Stability Review, November 2006

Financial Stability Review, November 2005

Report on the stability of the German financial system, October 2004

Report on the stability of the German financial system, December 2003

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