July 2011
IMF Country Report No. 11/169

Germany: Financial Sector Stability Assessment

This Financial Sector Stability Assessment for Germany was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on June 20, 2011. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of Germany or the Executive Board of the IMF.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
700 19th Street, N.W. • Washington, D.C. 20431
Telephone: (202) 623-7430 • Telefax: (202) 623-7201
E-mail: publications@imf.org Internet: http://www.imf.org

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

GERMANY

Financial System Stability Assessment

Prepared by the Monetary and Capital Markets and European Departments

Approved by José Viñals and Antonio Borges

June 20, 2011

This report presents the conclusions of the IMF Financial Sector Assessment Program (FSAP) Update mission, which visited Germany in January–February 2011. The FSAP findings and recommendations were discussed with the authorities during the Article IV Consultation mission in May 2011. The FSAP team comprised Messrs. Brockmeijer (Head), Bologna, Hardy, Jobst, Kazarian, Kiff, Schmieder, and Verkoren; Mmes. Sodsriwiboon and Sylvester (all Monetary and Capital Markets Department); Ms. Ivanova (European Department); Ms. Luedersen (Legal Department); Mr. Parente (Italian Insurance Supervisory Authority); Mr. Rodgers (formerly of the Australian Securities and Investments Commission); and Mr. Ryback (formerly of the Hong Kong Monetary Authority, and the Board of Governors of the Federal Reserve System). The mission appreciates the cooperation received from the authorities.

The main findings of the FSAP are:

- The German financial system is recovering from the global crisis, yet low profitability hampers many banks' ability to build stronger buffers against the shocks that could hit the global economy and especially Europe;
- Structural reforms are overdue. The Landesbanken require thorough restructuring and probably downsizing, but the imperative to loosen constraints and strengthen banks' commercial orientation is more general;
- The standard of financial sector regulation and supervision is high. The crisis showed that more timely information, additional on-site supervision, and follow up through forward-looking supervisory action are needed; and
- The framework to manage financial crises has been enhanced significantly, particularly with the introduction of a new bank resolution regime. Deposit protection schemes need to be rationalized, and Germany should actively help efforts to develop mechanisms to deal with cross-border crises.

The main author of this report is Daniel Hardy, with contributions from the rest of the FSAP Update team.

FSAP assessments are designed to assess the stability of the financial system as a whole and not that of individual institutions. They have been developed to help countries identify and remedy weaknesses in their financial sector structure, thereby enhancing their resilience to macroeconomic shocks and cross-border contagion. FSAP assessments do not cover risks that are specific to individual institutions such as asset quality, operational or legal risks, or fraud.

Contents Page

Boxes

Appendixes

Appendix Tables

Associated detailed assessment reports and technical notes were prepared.

GLOSSARY

AML/CFT	Anti-money laundering and combating of financing of terrorism
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial Supervisory Authority)
BMF	Bundesministerium der Finanzen (Federal Ministry of Finance)
CBPP	Covered Bond Purchase Program
CCP	Central Counterparty
DAR	Detailed assessment report
DGS	Deposit guarantee scheme
ECB	European Central Bank
ELA	Emergency liquidity assistance
ESAs	European Supervisory Authorities
ESCB	European System of Central Banks
ESFS	European System of Financial Supervisors
ESRB	European Systemic Risk Board
EU	European Union
FATF	Financial Action Task Force
FMSA	Federal Agency for Financial Market Stabilization
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSI	Financial soundness indicators
IAIS	International Association of Insurance Supervisors
KfW	Kreditanstalt für Wiederaufbau
NiGEM	National Institute of Economic and Social Research's global macroeconomic model
NPL	Nonperforming loan
ROC	Return on capital
ROE	Return on equity
ROSCs	Report on Observance of Standards and Codes
RWA	Risk-weighted assets
SCCA	Systemic Contingent Claims Analysis
SIFIs	Systemically important financial institution
SME	Small- and medium-sized enterprises
SoFFin	Special Fund for Financial Market Stabilization
U.S.	United States
WEO	World Economic Outlook

EXECUTIVE SUMMARY

The German financial system has stabilized after parts of it were hit hard during the financial crisis. The main impact came from exposures abroad and funding strains for certain banks; many of these banks had been widely seen as problematic even before the crisis—for example, in the 2003 Financial Sector Assessment Program (FSAP)—yet they built up risks as part of a "search for yield" that was not kept in check by effective governance. Thus, certain known structural weaknesses, which prudential oversight did not redress, combined with gaps in the crisis management system to make Germany vulnerable to crisis. The domestic loan portfolio was relatively robust against what turned out to be a short, sharp recession, and the government's introduction of support measures was successful in localizing problem cases. Since then, the financial system has strengthened further on the back of improving macroeconomic conditions.

Stability analysis suggests that German banks are robust against many shocks, but important vulnerabilities remain. Some banks suffer from balance sheet fragilities, and widespread low profitability will make it challenging for many to raise the level and quality of their capitalization, as required under the new Basel III regime and by tougher market conditions. Although exposures abroad in aggregate are well diversified, particular institutions have more concentrated and potentially worrisome exposures, including to vulnerable European countries. Moreover, some institutions such as certain Landesbanken are especially exposed to a spike in funding costs. The analysis also suggests that larger banks and some private banks are vulnerable to liquidity risk owing to their heavy reliance on whole sale funding.

Banks will have to adapt their strategies to meet rising regulatory requirements on the level and quality of capital and liquidity, and intense competition. It is widely acknowledged that most of the Landesbanken will have to adopt more viable business models. Given their heterogeneity, simple consolidation is unlikely to yield a desirable outcome; substantial downsizing will be needed. Some initial steps have been taken; the federal authorities, based on their responsibility for systemic stability, need to ensure that momentum is maintained. More generally, removing existing rigidities and reducing public sector influence will help improve the efficiency and stability of the banking system. Elements that could contribute to this process include the acknowledgment of the limitations of the mutual protection schemes run by the banking associations, and opening public sector banks to private participation. In this connection, strategies for exiting from the government support to banks need to be concretized.

The standard of financial sector regulation and supervision is generally high but specific weaknesses remain, requiring that lessons from the crisis on the need for early identification of vulnerabilities and taking preemptive action are urgently translated into supervisory practice. Assessments of observance of standards for the oversight of banking, insurance, securities markets and the central counter parties were undertaken as part of the FSAP Update; more detailed results and recommendations are

contained in the attached Reports on Observance of Standards and Codes (ROSCs). The German authorities have implemented multiple improvements following the 2003 FSAP, and in the context of the regulatory reforms initiated at the global and European level following the crisis. Several cross-cutting areas for action were identified by the FSAP team:

- **Direct supervision and in particular on-site supervision need to be strengthened further, and serious data gaps remain.** Reliance on external auditors causes lags in identifying problematic cases; data that capture new threats are sometimes unavailable to supervisors; and relevant statistics are published with long lags, thus weakening market discipline.

- **Supervisory action needs to be more forward-looking.** One element should be a consistent and well-documented ladder of supervisory actions (for banks, including but not restricted to the imposition of higher capital requirements) based on an assessment of the risks inherent in each institution's business model and its contribution to systemic risk.

- **The Bundesbank's macroprudential responsibilities and powers need to be clearly defined.** These should include not only identifying systemic risks, but also formulating recommendations for action to mitigate these, including through structural reforms.

- **The German supervisory authorities need to take a leadership role in extending and deepening cooperation and information sharing,** for example, in support of macroprudential analysis at the national and European levels.

The new bank restructuring law significantly strengthens the crisis management framework in Germany; fully effective implementation will require the integration of the deposit guarantee schemes (DGS) and mutual protection schemes, and the ex ante definition of procedures for dealing with very large institutions. The crisis demonstrated the importance of having a comprehensive and flexible crisis management framework, and the new law therefore introduces, for example, a mechanism to transfer a bank's business to another institution or a bridge bank. An important source of resources to facilitate bank resolution will be the new restructuring fund, but it will accumulate only slowly. The current system of DGS and mutual protection schemes is highly fragmented and nontransparent, and prefunding is limited. Rather, across the system there should be a harmonized and legally binding deposit guarantee of €100,000, backed by adequate prefunding, and appropriately linked to the restructuring mechanism. Enhanced transparency is needed regarding the schemes' financial strength. Moreover, concrete procedures and tools need to be further developed for handling the potential failure of German global banks (and global banks operating in Germany), including burden sharing arrangements and the definition of resolution plans.

Main recommendations are summarized in Table 1.

Table 1. Main FSAP Update Recommendations

Recommendations	Responsibility	Timeframe
Structural issues		
Develop a comprehensive strategy aimed at improving the efficiency and stability of the banking system, which includes the following: (a) urgently establishing viable business models for the Landesbanken; (b) loosening the regional constraints under which local banks operate; (c) opening up the public banks to private participation; and (d) strengthening these banks' governance to reduce noncommercial influences.	Federal Ministry of Finance (BMF), Federal Financial Supervisory Authority (BaFin), Bundesbank	 Short term Medium term Medium term Medium term
Microprudential supervision		
Continue to improve stress testing in the banking and insurance sectors, for example, with respect to longer-term risks, liquidity risk, and group-wide spillovers.	Bundesbank, BaFin	Medium term
Rigorously ensure that any financial institution that displays weaknesses on a forward-looking basis strengthens its balance sheet and takes managerial action.	BaFin	Short term
Grant supervisors power to vet in advance bank acquisitions of subsidiaries.	BMF	Medium term
Keep reporting requirements under review to ensure that timely and systemic information is available on emerging risk factors, and shorten publication lags.	Bundesbank, BaFin	Short term
Continue to strengthen on-site supervision.	BaFin	Medium term
Macroprudential supervision		
Define the role of the Bundesbank as macroprudential supervisor, and institute free exchange of information between macro and microprudential supervisors.	BMF, BaFin Bundesbank,	Short term
Crisis management and bank resolution		
Ensure the financial strength of the new bank restructuring fund, and clarify the interaction between the restructuring fund and the various DGS and mutual protection schemes.	BMF	Medium term
Reform the DGS regime by instituting a harmonized and legally binding deposit guarantee of €100,000, backed by adequate prefunding.	BMF, BaFin Bundesbank,	Short term
Finalize specific strategies for exiting from the government support to banks, and require the affected banks to formulate strategic plans.	BMF	Short term

I. INTRODUCTION

1. **The global financial crisis severely affected the German economy, especially due to the contraction in world trade in 2008–09, but recently the recovery has been strong (Appendix IV Table 4.1).**[1] Exports initially declined, but have since led the recovery. Employment was robust in the face of a sharp contraction followed by a rebound. The fiscal balance deteriorated and the public debt stock jumped due to financial stability support measures, stimulus measures and cyclical factors. The policy of the European Central Bank (ECB) allowed interest rates to fall to unprecedentedly low levels, and also facilitated the availability of liquidity in euros and U.S. dollars.

2. **Germany's financial system is complex and dispersed (Appendix IV Tables 4.2–4.10).** The banking system is based on a "three pillar" system (private banks, savings banks and the associated Landesbanken, and cooperative bank networks) with a relatively high portion of public banking.[2] The savings bank and cooperative pillars are each bound together through mutual guarantees, vertical ownership ties, integrated operating systems, the "regional principle" whereby members do not compete with each other, and legal restrictions on changing ownership form. The banking sector accounts for the majority of total financial sector assets, serving as a backbone to the German industry, which is more reliant on bank financing than that in many other advanced economies. The smaller banks are domestically oriented, while the major banks, including most apex organization of cooperative and savings banks, have significant exposures abroad through branches and subsidiaries, cross-border lending, and market operations, both in Europe and worldwide. Some German insurance and reinsurance companies are among the largest in the world. Securities markets are active and well-integrated into world markets, and assets under management are large.

3. **The structure of the system has remained broadly unchanged over the past decade, with some consolidation and foreign entry.** Consolidation has continued in all "pillars," and some foreign entry has occurred. The privatization of the postal savings bank reduced the share of government-owned banks, and several of the Landesbanken were incorporated and/or integrated vertically with Sparkassen from the respective regions.

4. **Nonetheless, the structural issues—and indeed the stability issues—identified in the 2003 FSAP remain broadly relevant.** At that time, Germany's banking sector and financial system was under strong pressure, but stress tests suggested that there was no major threat to overall financial stability. Regulation was assessed to be well-developed, comprehensive, and broadly effective (with the exception of the

[1] See accompanying Staff Report on the 2011 Article IV consultation.

[2] In addition to savings banks and Landesbanken that are largely owned by regional bodies and the states, the federal government owns a number of institutions, such as the Kreditanstalt für Wiederaufbau (KfW).

reinsurance sector). The main recommendations were to (a) enhance competition and structural development by reducing the rigidity of the "three pillar" system (with the aim to reform the Landesbanken in particular); (b) increase the transparency of public banks; and (c) improve specific aspects of the legal framework, regulation, and, especially, supervision. As summarized in Appendix I, the authorities have made efforts to enhance supervisory practice. However, the "three pillar" system and the supporting institutions (such as the mutual guarantees among savings banks and among cooperatives, respectively, and limits on competition) are largely intact.

5. **Parts of Germany's banking sector were hit hard during the financial crisis, but with strong policy support channeled through exceptional measures, the condition of the financial sector has stabilized.** Banks, including some large banks, suffered market losses and difficult access to, and high costs of financing; those that were perceived to have lower capitalization or lower quality capital were most at risk. As the recession deepened, banks exposed to the export sector faced deteriorating loan quality. Several banks—including certain Landesbanken but also a major issuer of covered bonds—had to be intervened, at significant costs to the German taxpayer.

6. **Following some initial ad hoc rescues of troubled banks, the authorities moved to a more comprehensive approach to addressing the financial crisis.** A new financial stability framework was introduced in October 2008, including the establishment of the Federal Agency for Financial Market Stabilization (FMSA) to administer the Special Fund for Financial Market Stabilization (SoFFin). Financial stability support measures comprised guarantees, recapitalizations, asset purchases, and, subsequently, the establishment of winding-up institutions; while sizeable support was provided, available resources were far from exhausted. Some banks received additional assistance from the *Länder*. In international comparison, these measures are large in absolute terms, but not very large as a percentage of GDP if the portfolios of the winding-up institutions—the proceeds of which will become clear only in the future—are excluded. These measures were flanked by other public measures such as credit programs for small- and medium-sized enterprises (SMEs) by the development banks, and fiscal stimulus.

II. Stability Issues

A. Financial System Vulnerabilities

7. **The financial system has no doubt strengthened since the depth of the crisis, and the current German macroeconomic conditions are highly supportive, but vulnerabilities remain.** Besides the possibility of an acute crisis, banks, and other financial institutions, may suffer from prolonged weakness in profitability and, therefore, capitalization. The main vulnerabilities identified in the FSAP Update include (see the Risk Assessment Matrix in Appendix II for more detailed information):

- Prolonged slow growth in Germany and possibly major export markets, especially if accompanied by low interest rates.

- A renewed recession in the advanced economies and possibly in the emerging markets that are important importers of German products, perhaps occasioned by renewed financial uncertainty or a further spike in commodity and energy prices.

- Intensification or widening of concerns over sovereign risk. Several of the vulnerable countries in Europe now have programs supported by the IMF and European institutions, and these countries are individually relatively small. A large and unpredictable impact would be felt if the fiscal sustainability in larger countries came into question or generalized uncertainty became pervasive. In some countries, the creditworthiness of subnational levels of government may deteriorate.

- Reemergence of funding market strains, possibly in the context of one of the other vulnerabilities.

- Regulatory uncertainty and burden, including the effects of Basel III on capital requirements, which may weigh on financial institutions and the supply of financial services, and thus economic performance overall.

8. **Many of these vulnerabilities reflect the international connectedness of the German economy and especially its financial system.**[3] For example, German financial institutions have substantial exposures to the financial and private sectors, and to a lesser extent to the government sectors, across Europe, the United States (U.S.), and other regions; Appendix IV Table 4.3 shows that banks' foreign claims make up over a quarter of total assets, with especially large claims on the United Kingdom and the U.S.[4] Total claims on euro area countries are large but diversified—at least in aggregate. It appears that, during 2010, banks have tended to reduce their exposures to European countries with elevated sovereign risk premia. Some German financial institutions (mainly the larger banks and insurers) have important foreign operations, the disruption of which might have knock-on effects across borders and in global financial markets.[5] Funding markets are highly internationalized: even those German banks that are net providers of funding to the interbank market would be affected in the event of renewed tensions; gross volumes, in both euro and U. S. dollars, are large (Appendix IV Table 4.5).

---

[3] Germany's gross foreign assets as per the end of 2010 are estimated at about 258 percent of GDP, and net foreign assets are almost 42 percent of GDP. Real sector linkages are likewise strong: exports amount to about half of GDP. The accompanying Staff Report on the 2011 Article IV consultation contains additional analysis.

[4] Claims on enterprises include claims on nonbank financial institutions.

[5] For more evidence, see for example *Global Financial Stability Report*, April 2009, Chapter 2.

B. Banking

Financial stability indicators and recent performance

9. **Financial soundness indicators (FSIs) point to the stability of the banking system as a whole, with some important differences across "pillars" (Appendix IV Tables 4.4 and 4.5).** Many indicators, such as the nonperforming loan (NPL) ratio, have been only weakly related to cyclical factors in recent years. Average regulatory capital ratios are rising, but leverage remains high, especially in the investment banking-oriented commercial banks. The savings and cooperative pillars display strong liquidity indicators and a much lower loan-to-deposit ratio than do the private commercial banks.

10. **Profitability, notably as measured by return on equity (ROE), has been persistently low, especially for the Landesbanken.**[6] For some banks, a low average level of profitability is associated with low volatility, but even on a risk-adjusted basis the system performs poorly compared to European peers (Table 2). [7] Earnings at many banks were mediocre before the crisis, and then collapsed or turned negative during the crisis. The contrast between poor average profitability and generally solid balance sheets is apparent also in international comparison (Figure 1).

Table 2. Germany: Banks' Risk-Adjusted Performance 1/

	Mean of Return on Equity	Std. Dev. of Return on Equity	Sharpe Ratio	Risk-Adjusted Performance (Percent)	Percentile among 100 largest European banks		
					Return on Equity	Sharpe Ratio	Risk-Adjusted Performance
Landesbanken	-0.8	14.7	-0.3	1.1	2	3	3
Commercial banks	6.4	11.7	0.3	5.3	23	21	21
Sparkassen	3.6	2.0	0.3	5.0	11	17	17
Cooperative banks	4.8	2.9	0.6	7.8	16	33	33
100 Largest European Banks	9.9	7.7	0.9	9.9			

1/The sample includes 1,603 German banks and 100 largest European banks. Data are from 2000–2009.
For robustness check, different time intervals are tested, but do not alter the qualitative results.

Sources: Bankscope; IMF Staff Calculations

11. **Most official FSIs are available only with an unusually long lag, so reliance has to be placed on published individual results.** Several major banks have raised equity in late 2010 and early 2011, and some have upgraded the quality of existing capital. Part of the strengthening of capitalization ratios reflects anticipation of higher prudential requirements. Bank earnings results for 2010 and early 2011 show a rebound.

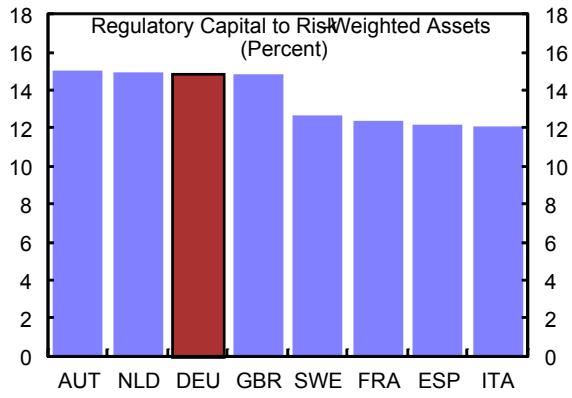
---

[6] Relatively high leverage for many banks implies that also return on assets has been comparatively poor.

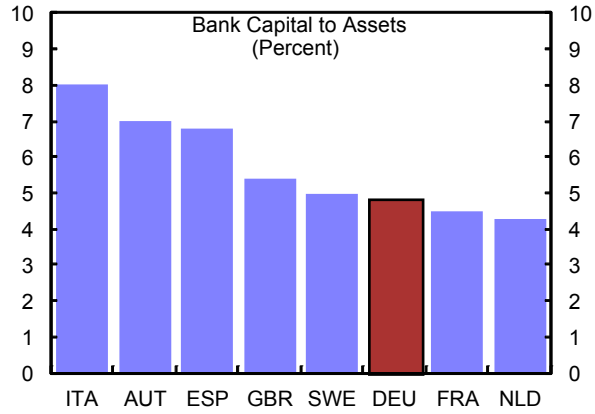
[7] The Sharpe ratio calculates the reward per unit of risk: $\left(E(r_i) - r_f\right)/\sigma_i$. The risk-adjusted performance uses the market opportunity cost of risk to define $RAPi = (\sigma_M / \sigma_i)(r_i - r_f) + r_f$, where r_i is return on equity of bank *i*; r_f is one-year German treasury bill rate, or estimated German bond yield with residual maturities of one-year; σ_i is a standard deviation of the return on equity of bank *i*; σ_M is a standard deviation of the return on equity of 100 largest European banks.

Figure 1. Germany: Financial Soundness Indicators in Cross-Country Comparison

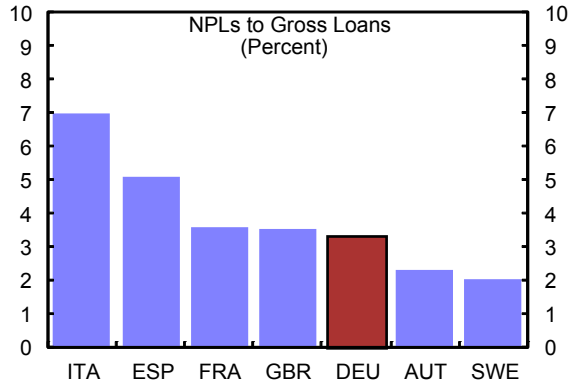
German banks are adequately capitalized.



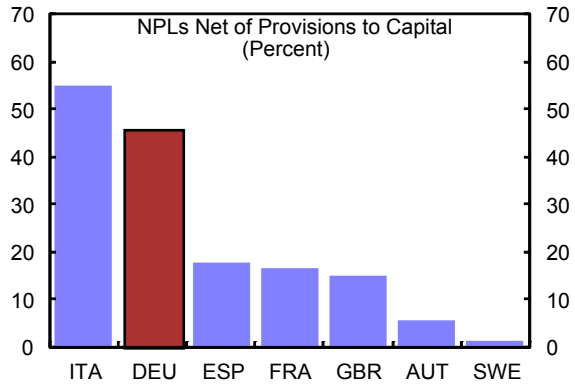
Nonetheless, German banks are highly leveraged, compared with peers.



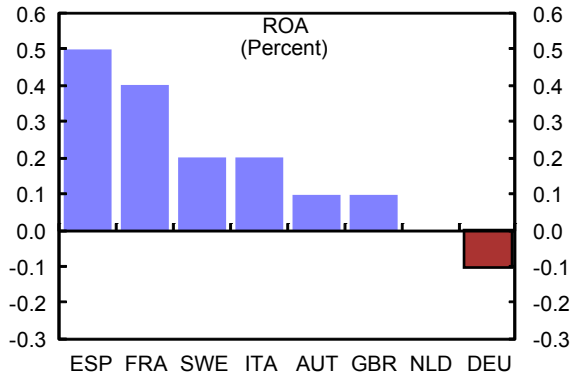
NPLs are comparable with those of peers.

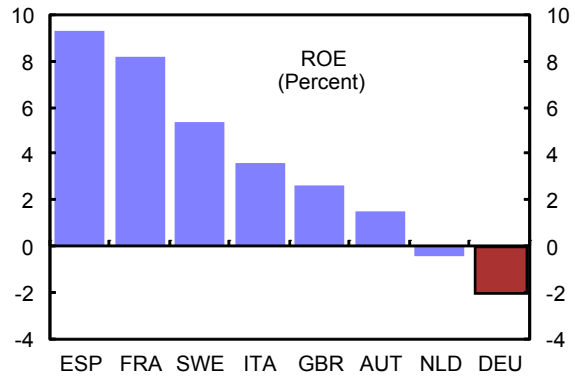


But NPLs net of provisions are substantially higher.



German banks exhibit poor profitability relative to that of their peers.





Source: Deutsche Bundesbank, Global Financial Stability Report IMF's Financial Soundness Indicator Database
Data are as of 2009.

Stress testing

12. **The bank stress-testing exercise was undertaken cooperatively with the Bundesbank.** The core tests based on bank-by-bank supervisory data were calculated by the Bundesbank. Supplementary analysis and tests based on publicly available data were undertaken by Fund staff to assess the sensitivity of the results.

13. **The aim was to gain a comprehensive view on the vulnerabilities in the system over the medium term, and (structural) differences across types of banks.** Thus, the solvency tests covered a period of five years, include almost the entire German banking system, examine a range of measures of soundness, and capture a number of behavioral feedback mechanisms that affect outcomes gradually over time (Appendix III). The analysis also included a liquidity risk assessment.

14. **Solvency tests assessed the vulnerability of the banking system under two macroeconomic stress scenarios over 2011–2015:** (a) a sharp "double-dip" recession associated with an oil price shock and a decline in foreign demand, the policy reaction to which leads to a significant "spike" in short-term interest rates and lower long-term rates; and (b) a prolonged period of very low growth. These scenarios correspond to the main risks identified (see Appendix II Risk Assessment Matrix). Results under these scenarios were benchmarked against those obtained under a baseline scenario that is in line with the October 2010 World Economic Outlook (WEO) projections, which itself currently does not envisage sustained rapid growth.

15. **The relatively long time horizon and the number of feedback mechanisms incorporated in the tests generate a widening confidence band on both sides of the estimated outcomes.** The supplementary robustness tests do provide some comfort, as does the broad consistency of the results with those obtained in comparable countries using comparable methodologies.

16. **Balance sheet-based core tests revealed that German banks are, overall, in a position to cope with stress, including prolonged slow growth, but also that there are several pockets of vulnerabilities that should be dealt with on a timely basis (Table 3 and Figure 2).** Banks' portfolios are robust against conjunctural fluctuations.[8] However, the total amount of capital needed to meet Basel III standards is considerable. In most cases, that need can be met out of retained earnings, and, as mentioned, recently some banks have raised capital. Many banks are profitable enough to build up substantial buffers under any scenario. Yet, others might have to de-leverage, and in some cases a capital shortfall remains. Hence, further arranged consolidation is likely. For smaller banks, the slow growth scenario is projected to be less problematic than the "double-dip/interest rate spike" because the yield curve remains steeper and therefore profits from

[8] The Bundesbank's single-factor tests corroborate this conclusion also for smaller banks.

maturity transformation are higher. The larger banks (the systemically important financial institutions—SIFIs) are more susceptible to funding cost risk, which for weaker banks could lead to adverse feedback between relatively low capitalization and high costs.

Table 3. Germany: Outcome of Core Solvency Tests

Scenario	Baseline		2010	2011	2012	2013	2014	2015
	Tier 1 Ratio (in percent)	SIFIs	12.9	13.0	13.6	13.8	13.7	13.4
		Savings banks	10.3	10.8	11.3	11.8	12.3	12.7
		Cooperative Bank	10.0	10.6	11.1	11.5	12.0	12.4
	Number of banks with shortfall	SIFIs	0	0	0	0	0	0
		Savings banks	0	0	0	4	6	6
		Cooperative Bank	0	13	26	35	50	58
	Capital shortfall (EUR million)	SIFIs	0	0	0	0	0	0
		Savings banks	0	0	0	115	288	389
		Cooperative Bank	0	135	169	237	391	553

Scenario	Double Dip & Interest Rate Spike		2010	2011	2012	2013	2014	2015
	Tier 1 Ratio (in percent)	SIFIs	12.9	10.8	8.6	10.7	11.6	11.1
		Savings banks	10.3	10.4	10.1	10.2	10.5	10.7
		Cooperative Bank	10.0	10.6	10.2	10.4	10.6	10.9
	Number of banks with shortfall	SIFIs	0	0	0	0	1	2
		Savings banks	0	0	6	13	22	30
		Cooperative Bank	0	19	51	77	94	109
	Capital shortfall (EUR million)	SIFIs	0	0	0	0	234	2,548
		Savings banks	0	0	188	319	597	857
		Cooperative Bank	0	157	315	506	832	1,145

Scenario	Slow Growth		2010	2011	2012	2013	2014	2015
	Tier 1 Ratio (in percent)	SIFIs	12.9	11.6	11.5	11.1	10.5	9.7
		Savings banks	10.3	10.9	11.4	11.8	12.3	12.7
		Cooperative Bank	10.0	10.9	11.5	11.9	12.4	12.6
	Number of banks with shortfall	SIFIs	0	0	0	0	1	1
		Savings banks	0	0	2	5	6	12
		Cooperative Bank	0	15	29	41	57	75
	Capital shortfall (EUR million)	SIFIs	0	0	0	0	57	1,690
		Savings banks	0	0	22	185	332	426
		Cooperative Bank	0	138	174	290	475	669

Sources: Deutsche Bundesbank; and IMF staff.

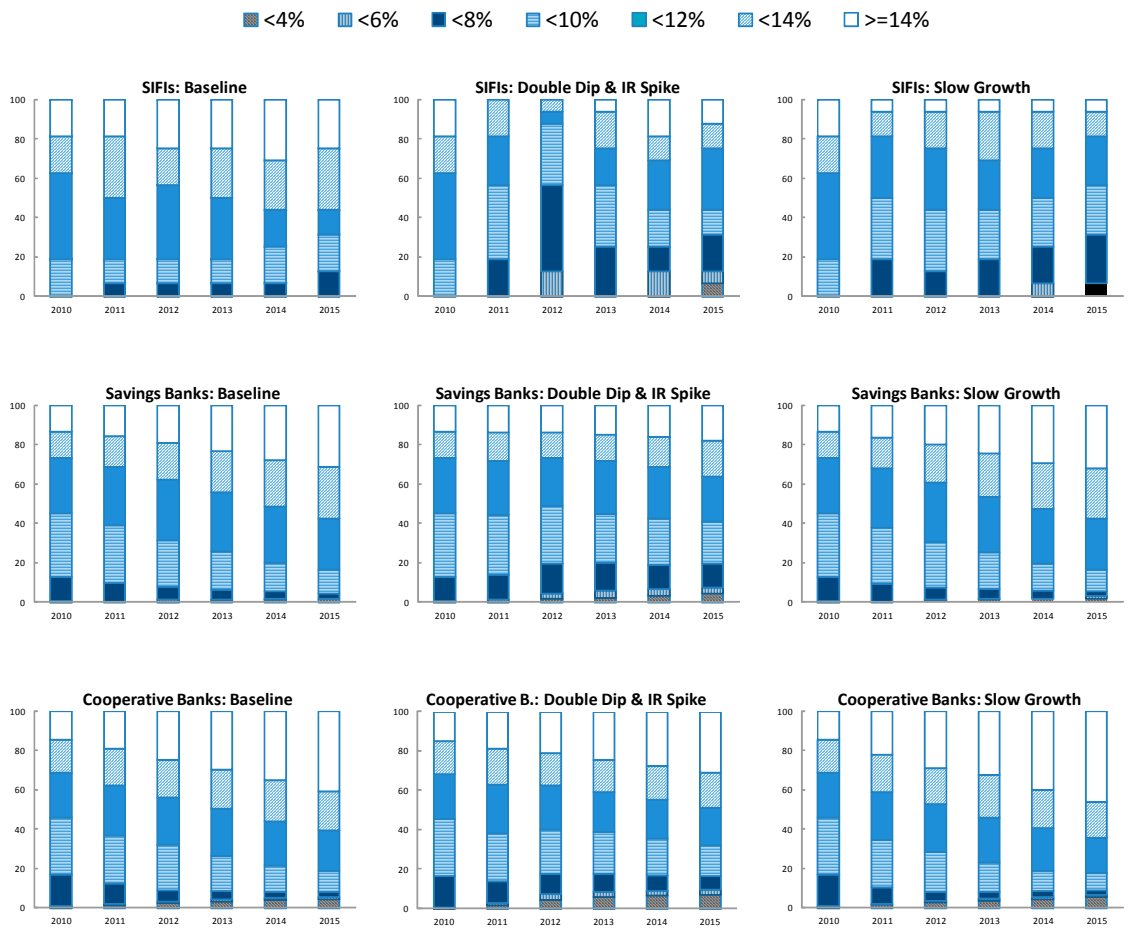
17. **Supplementary tests corroborate the finding that, despite the resilience of bank solvency, the secular effects of low profitability are pervasive.** Across pillars, low profitability implies that most banks would earn only low return on capital (ROC), and would thus be constrained in paying out dividends to attract capital, even in a relatively benign macroeconomic environment (Figure 3).[9] Factors that reduce profitability, such as a flat or inverted yield curve, amplify these effects.[10]

[9] Due to data limitations, returns and dividend yields are shown relative to regulatory capital rather than equity. Note that some banks may pay out dividends even when in aggregate banks make losses.

[10] The role of interest income was stressed in the Deutsche Bundesbank's 2010 Financial Stability Review.

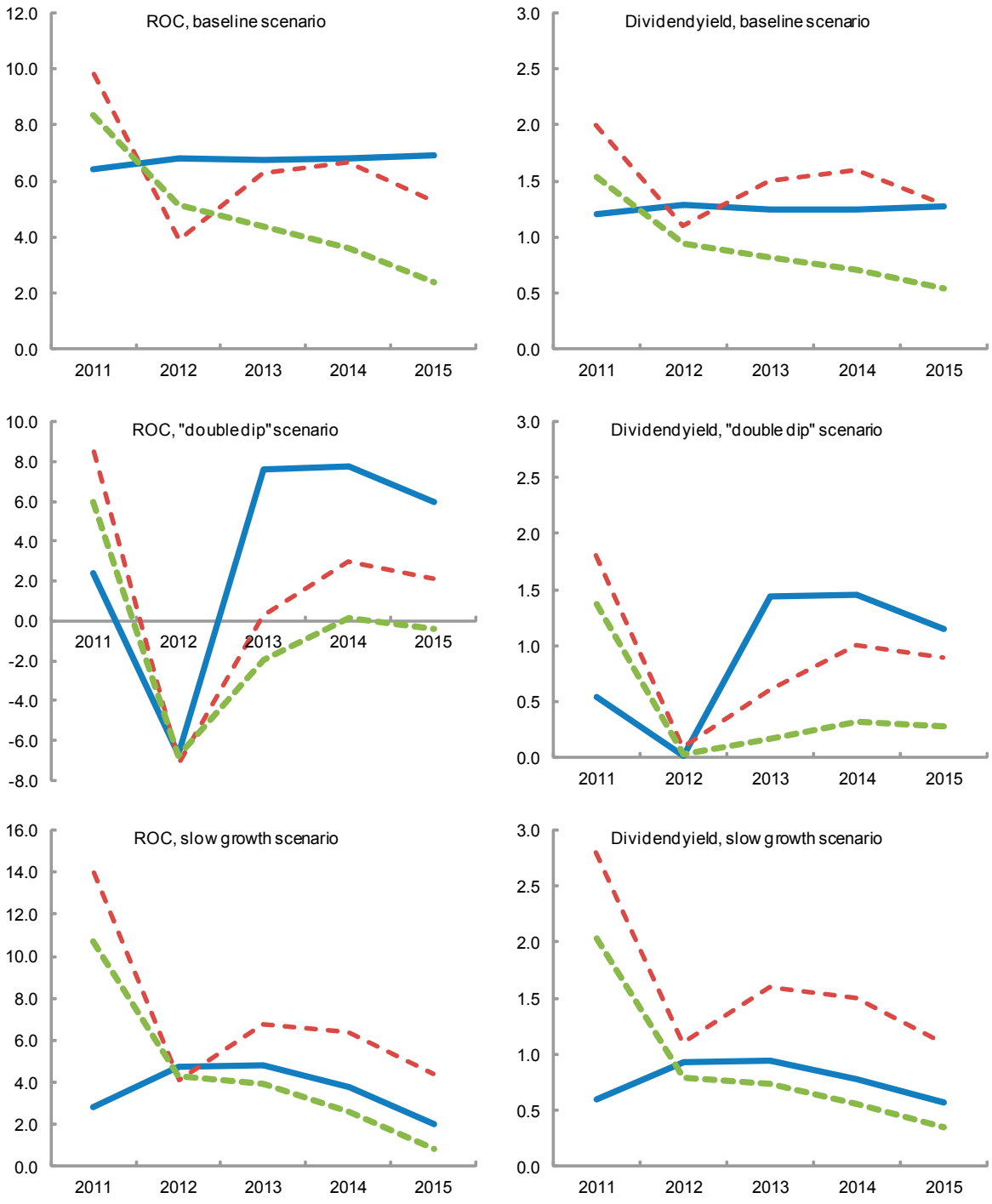
Figure 2. Germany: Outcome of Core Solvency Tests—Dispersion by Bank Group

(Percent of group by number of banks)



Source: Deutsche Bundesbank and IMF staff.

Figure 3. Germany: Projected Return on Capital and Dividend Yield
(Percent)



Source: Staff estimates based on publicly available data.

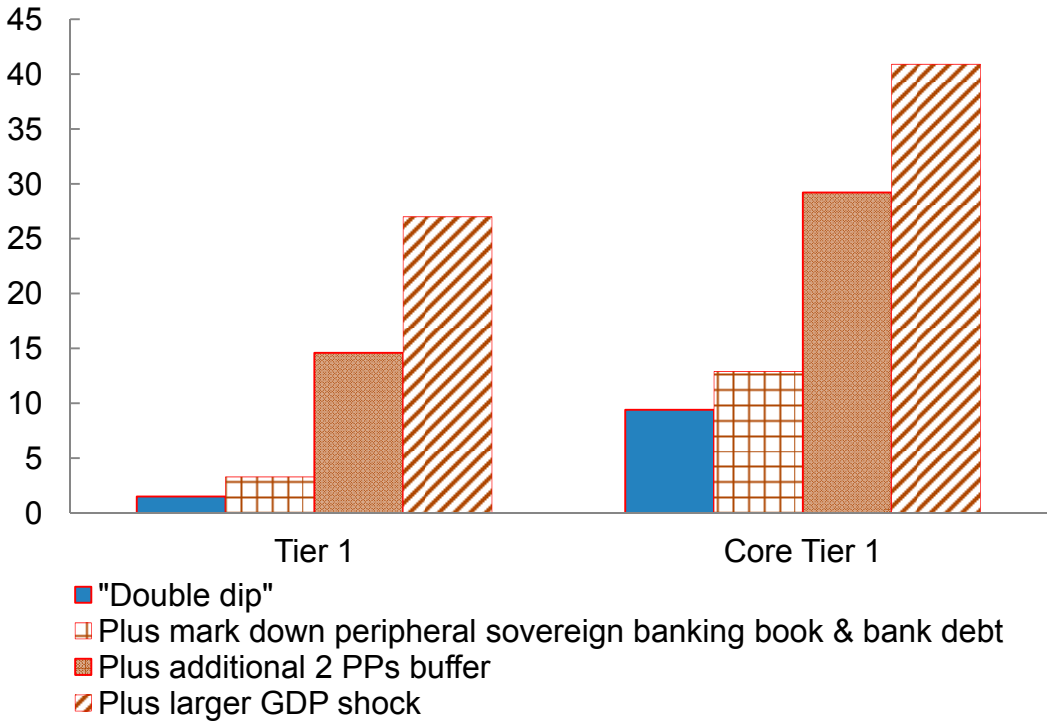
18. **The supplementary tests suggest, furthermore, that the capital shortfall may turn out higher than those computed under the core tests, but it should remain contained in aggregate unless there is a generalized intense crisis in financial markets.** The simulations focus on the double-dip scenario and the SIFIs. As displayed in Figure 4, the analysis carried out based on publicly available data reveals results similar to those obtained from supervisory data, which are reported in Table 3 and Figure 2 (the estimated capital shortfall is slightly lower, at €1.5 billion, than when supervisory data are used). If all claims on the most vulnerable sovereigns (Greece, Ireland, Italy, Portugal, Spain, Belgium) and related claims on banks are subject to a "haircut" inferred from market prices, these banks would suffer gross losses of €23 billion in 2011; accounting for positive valuation effects in the outer years, losses would be €17 billion at end-2015.[11] However, many banks can absorb the losses in capital buffers and profits; in a few cases, these losses would result in an additional capital shortfall totaling €1.8 billion for Tier 1 capital. However, since the time when the stress-testing exercise was carried out, market perception of risk for some vulnerable countries have deteriorated further; larger losses would be incurred if these risks are realized.[12] Ultimately, were turmoil to spread to larger countries that are more closely tied to Germany, the impact through solvency and funding channels might become much larger, but such scenarios are inherently characterized by great uncertainty.

19. **The supplementary tests also illustrate the sensitivity of results to demands for better capitalization or a more severe output shock.** If one adds an additional capitalization buffer of 2 percentage points and a larger fall in GDP, the capital shortfall is substantially larger. Yet, the burden of the additional buffer and or a larger GDP fall is not very large for the system as a whole, and would occur mainly in the outer years, so banks would have time to react. As shown on the right-hand side of Table 4, the capital shortfall would be at least half again larger if measured against core Tier 1 (where the hurdle rate rises to 4.5 percent by 2015). This last result underscores that strengthening the quality of capital should be a priority, especially for banks that already have capital with relatively low loss-absorption capacity; some action is already underway.

[11] Sovereign CDS rates for these countries can be used to derive estimates of market expectations of sovereign "haircuts." The "haircuts" used here are set at the 75th percentile of the distribution of these market expectations, starting from the 2010Q4 average CDS rates.

[12] To illustrate the sensitivity of results, a hypothetical severe write down of 60 percent of sovereign claims on Greece, Ireland, and Portugal is estimated to cost these banks €42 billion in 2011, and €36 billion by 2015; the hypothetical additional Tier 1 capital shortfall would be €14 billion.

Figure 4. Germany: Estimated Capital Shortfalls in Supplementary Tests 1/
(SIFIs only; euro billions)



Source: Staff estimates based on publicly available data.

1/ Estimates are based on publicly available data are carried for the double dip and interest rate spike scenario. The outcome shows the capital needs by 2015 if one progressively adds up to 3 elements of extra stress: a) stress of sovereign debt holdings in the banking book as well as related bank debt securities; b) an additional Tier 1 or Core Tier 1 capital buffer of 2 percentage points of risk-weighted assets (RWAs) above the regulatory Basel II/III minimum in each year; and c) a more severe macroeconomic scenario corresponding to 2.6 standard deviations of the historical GDP series (1980–2010) after allowing for German reunification.

20. **Some small private banks appear robust, while others show some weaknesses.** Although only single-factor test could be performed, smaller private banks appear relatively more vulnerable than others to potential credit losses, albeit with wide dispersion (see Table 4).

Table 4. Germany: Sensitivity Analysis for Small Private Banks
(Percent except where indicated)

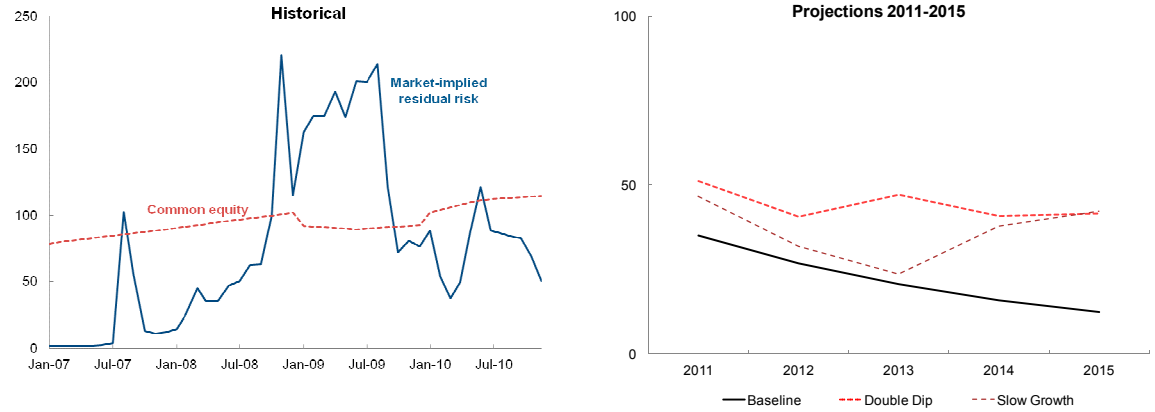
Sensitivity Test		Before Test (Q3 2010)			After Test				
		Q25	Median	Q75	Q25	Median	Q75	Number of Banks Below Regulatory Minimum	Capital Needs (EUR million)
Increase of Loss Rates by 20 Percent	Total CAR	11.8	15.6	22.0	11.4	15.3	21.9	2	80
	Tier 1 Ratio	9.7	13.8	21.4	9.5	13.8	21.1		
	RoE	0.0	2.2	8.4	-2.4	0.8	7.3		
Increase of Loss Rates by 50 Percent	Total CAR	11.8	15.6	22.0	11.1	14.9	21.7	4	230
	Tier 1 Ratio	9.7	13.8	21.4	9.3	13.2	20.6		
	RoE	0.0	2.2	8.4	-4.9	0.0	6.0		
Default of 3 largest borrowers	Total CAR	11.8	15.6	22.0	10.7	14.5	21.7	5	150
	Tier 1 Ratio	9.7	13.8	21.4	8.6	12.5	20.0		
	RoE	0.0	2.2	8.4	-9.8	-3.0	1.5		

Sources: Deutsche Bundesbank; and IMF staff.

21. **Additional results for SIFIs obtained using the Systemic Contingent Claims Analysis (SCCA) approach corroborate those presented above, suggesting that market-perceived vulnerabilities have eased from recent highs but could reemerge in either adverse scenario.** The "residual risk" for the largest banks has fallen from peaks during the crisis, and is now well below those banks' common equity (Figure 5).[13] It is projected to fall slowly under the baseline scenario. Under the "double-dip" scenario where short interest rates rise, residual risk stays relatively elevated. Under the slow growth scenario, residual risk gradually rises to a level comparable to that achieved under the "double dip"—a result seen also in the balance sheet-based stress tests. The banks concerned are those that are most active in global financial markets. Additional analysis based on the SCCA confirms the intuition that a small number of banks generate the bulk of systemic effects; the concentration of systemic risk in a few banks increased sharply at the onset of the credit crisis.

[13] The "residual risk" can be understood as the magnitude of bank losses to be expected in the worst cases (say, the worst 5 percent). The index measures the 95th percentile of the distribution of possible losses, relative to its level in September 2008. An index is preferred over an absolute euro amount in order to emphasize the relative change over time.

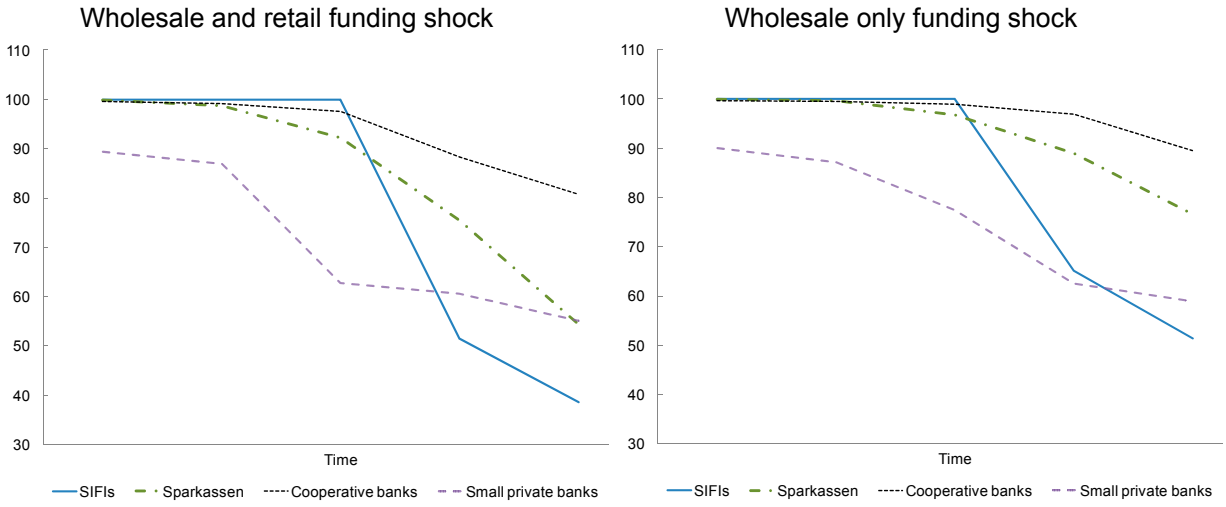
Figure 5. Germany: Market-Implied Residual Risk
(95th percentile; September 2008=100)



Source: Staff estimates.

22. **Most banks are able to cope with major liquidity shocks, yet the reliance on wholesale funding is a concern for some banks (Figure 6).** The large banks and many of the private banks would be most exposed in the event of a sudden withdrawal of wholesale funding. Smaller German banks, and especially the Sparkassen and cooperative banks, benefit from their broad deposit base and ample holdings of high-grade securities.

Figure 6. Germany: Liquidity Stress-Test Results
(Percent of banks that are liquid)



Sources: Deutsche Bundesbank; and IMF staff.

23. **The Bundesbank devotes considerable effort to stress testing, but its approach will need to be adapted to changing conditions.** Worthwhile enhancements would include:

- More complete coverage of the banking sector.

- A longer time horizon to identify potential structural vulnerabilities.
- Calculation of a range of metrics, including core Tier I and profitability measures.
- Better modeling of funding cost risk, including those of U.S. dollar funding.
- Enhanced stress tests of liquidity in euro and U.S. dollar, and of concentration risk.

Structural pressures

24. **This review of stability issues suggest that the banking system will need to adapt, while preserving a relatively stable financial system and ease of access to banking.** The need for a thorough reform of the Landesbanken—diverse as they are—is now widely accepted, although political consensus is elusive. Yet, the structural issues are wider: the system is characterized by low profitability, even when adjusted for risk, and inefficient use of public resources. The phasing out of hybrid capital will add to the challenges. The smaller banks start with mostly high-quality capital and often can draw on hidden reserves, but they lack access to the capital markets. There are undoubted benefits to the system, yet better understanding of those benefits and associated costs is necessary to inform public debate.

25. **The efficiency and stability of the banking system could be helped by the removal of existing rigidities and reducing public sector involvement.** The problems in the Landesbanken sector are long-standing: with the termination of government guarantees a decade ago and limited demand for their traditional services to savings banks, their owners did not insist on downsizing. Rather, many Landesbank continued to borrow in wholesale markets in order to invest in what turned out to be highly speculative overseas securities. The collapse of many of these markets brought down Landesbanken, and the survivors are still experimenting with various business models. Their owners, including notably *Länder* governments, have primary responsibility for driving reform and monitoring the risk-return trade off, but the federal government must play a role commensurate with its responsibility for overall financial stability and fiscal backstopping of subnational governments. The Landesbanken are far from homogeneous, so simple consolidation is unlikely to be an attractive approach; it could merely aggregate the underlying weaknesses of the existing institutions without creating synergies, and increase systemic concerns. Viable restructuring may involve considerable downsizing and reform of governance structures.[14]

26. **The crisis has shown the need to reconsider the system of intra-pillar mutual protection schemes that make smaller banks liable for each other and for their apex**

[14] Since the time of the mission, options for restructuring certain Landesbanken have been put forward, but a final decision has yet to be taken.

institutions. The mutual protection schemes and ownership links implied, in particular, that difficulties in Landesbanken burdened savings banks. It is incumbent on the supervisor to require participants in such schemes to make provisions against "expected" losses (perhaps via insurance premia estimated on a robust basis) and a capital charge for "unexpected" losses. These charges would bring out the true costs of the schemes, which are currently implicit and borne mostly by the smaller banks, while others now enjoy a ratings upgrade. Furthermore, banks that are in the public or cooperative sector are not subject to as much market discipline as others; as this means that Pillar 3 of Basel 2 is less effective for them, the supervisor should strengthen the other pillars and, in particular, supervisory oversight.

27. **Furthermore, greater flexibility in ownership structures, and loosening the "regional principle" could bring substantial benefits.** Opening the savings bank sector to private participation could yield gains in efficiency, flexibility in management of capital, and market discipline, by loosening close ties with local authorities.[15] [16] The regional principle, which constrains consolidation and limits the growth of the most efficient local banks, could at a minimum be loosened by creating multiple-savings bank regions. These changes would need to be implemented over time, with immediate actions directed toward addressing acute problems of the Landesbanken.

28. **It could prove costly to shift towards longer term financing, as will be required following the crisis.** Besides regulatory changes, markets might be more demanding. For example, if rating agencies start to give less weight to the mutual guarantee schemes within the savings bank and cooperatives pillars, funding costs will rise for banks that are net borrowers. To some extent, banks' funding challenges can be met through reliance on covered bonds (*Pfandbrief*) and securitization, but these markets too may have to adapt to a more risk-sensitive environment (Box 1).

[15] The experience of Germany's neighbors with such flexibility has been positive.

[16] The cooperative sector may also benefit from greater flexibility in its capital structure, for example, by establishing listed subsidiaries.

Box 1. Covered Bonds and Securitization

The German covered bond (*Pfandbrief*) market held up relatively well during the crisis, helping to ease funding strains on banks. The ECB's Covered Bond Purchase Program (CBPP) helped stabilize the market during the crisis. While the volume of *Pfandbrief* outstanding has been on a declining trend, the number of issuers has risen, and the mortgage *Pfandbrief* segment has been growing.

Pfandbrief are regarded as very safe investments because they are both over-collateralized with relatively safe underlying assets (low loan-to-value mortgages and loans to (mostly) European public-sector entities), and represent a privileged claim on the issuing bank ("dual recourse"). Furthermore, *Pfandbrief* benefit from a strong legislative framework and BaFin's role in collateral supervision; recent German legislative amendments have clarified provisions on the availability of "cover pools" and the resolution of a *Pfandbrief*-issuing bank. Moreover, *Pfandbrief* arguably benefit from a perception that the government is committed to supporting the "brand." 1/ However, *Pfandbrief* issuers face pressure from the stringent over-collateralization and liquidity requirements being demanded by the rating agencies.

The extensive legal protection granted to *Pfandbrief* investors implies the potential encumbrance of banks' highest quality assets. Reliance on *Pfandbrief*-based funding may reduce a bank's costs and thus its probability of getting into difficulties, but may also complicate dealing with those difficulties. For example, in the new bank resolution framework, *Pfandbrief* investors will be satisfied taking priority over depositors' claims and other unsecured creditors. However, *Pfandbrief* do not make up a large share of the balance sheet of most banks that issue them, except for the specialized banks that generally do not have retail depositors. Nevertheless, protecting the *Pfandbrief* "brand" may make it difficult to resist calls for the government bailout of a *Pfandbrief*-issuing bank that gets into difficulties, thus potentially increasing moral hazard. Recent legislative reforms are in part designed to reduce this concern. Greater transparency about the underlying assets may reduce the systemic interdependencies.

There is also a nascent domestic securitization market, which the authorities have promoted over the past decade, for example, through facilities provided by KfW. However, securitization has played, and will probably continue to play, a minor role, largely because *Pfandbriefe* have long provided cost-efficient funding. 2/ Recent international initiatives aimed at making securitization more robust should discourage the supply of less desirable forms of securitization. In addition, there is a relatively limited supply of suitable assets, such as credit card receivables, so aside from some auto loan-backed transactions, German securitization markets are thin. Nonetheless, the availability of securitization is complementary to that of *Pfandbrief*, and may become more important if issuers become more concerned with releasing capital, in addition to raising funding.

1/ This perceived support for the *Pfandbrief* "brand" may have been reinforced by the intervention in a major issuer during the crisis. The CBPP may also have contributed to this perception.
2/ In a securitization transaction, the issuer transfers the risk associated with the loan portfolio to a separate entity, which is funded by asset- or mortgage-backed securities. In this way, all of the risk related to the underlying assets is removed from the balance sheet and legally segregated from the issuer.

C. Insurance

29. **The global financial crisis had a moderate effect on the insurance sector.** The sector is robust to funding market disturbances, and exposure to high-risk securities ("toxic asset") appears to be widespread but quite limited. Available indicators point to adequate levels of solvency and relatively low, but stable profitability, with the exception of the more volatile reinsurance sector (Appendix IV Table 4.6). The holding of sovereign debt holdings

in Europe is limited, according to a BaFin-led survey among the German insurers, and prudential limits on riskier investments are not binding for most German insurers.[17]

30. **The main challenge, especially for life insurance and pension funds, is the low interest rate environment, where strains may build up over time (Appendix III).** Falling interest rates generate unrealized gains on assets, but they also increase the expected value of liabilities to policyholders. The effect is amplified by certain statutory floors on returns to policyholders, such that the average guaranteed return on the stock of policies outstanding is relatively high. Nonetheless, analysis suggests that insurers could cope with low rates for at least five years due to conservative accounting of both assets and liabilities.[18] Over the long term, longevity risk could turn out to be significant, although actuarial assumptions—based on nation-wide data—are reportedly very conservative.

D. Corporate and Household Sectors

31. **Aggregate financial indicators for the household sector point to considerable strength (Appendix IV Table 4.9).** Consumer loans and mortgages are proportionately lower than in many other advanced economies, and retail mortgages tend to be at fixed rates. Real estate prices have been flat following the end of the post-reunification boom.

32. **The nonfinancial corporate sector survived the crisis relatively well, and aggregate profitability has been maintained (Appendix IV Table 4.10).** Corporate bond spreads, which increased sharply in 2009, have fallen back to their 2008 levels. However, bank borrowing remains relatively high in international comparison.

33. **Some corporations have pension liabilities on their balance sheets, which may become more of a burden.** These liabilities comprise more than half of total pension claims and amount to about 10 percent of GDP. As in the insurance sector, these pension liabilities may prove expensive in a low interest rate environment, especially because a relatively high discount rate is applied (currently 5.1 percent).

III. Regulatory and Supervisory System

34. **The financial crisis has led to a reconsideration of the principles and practice of financial sector regulation and supervision, in Germany and around the world.** Germany's reform program has influenced, and been informed by, the international efforts in this area, and by the various European initiatives, such as the revision of many regulatory

[17] See BaFin, Annual Report 2009, p.94, Table 7.

[18] Bundesbank, Financial Stability Review 2010, p. 103, and BaFin, Annual Report 2009, Section 4, suggest that low interest rates would begin to exert marked strain in 2017 under a severe scenario.

directives and the creation of a stronger architecture of European System of Financial Supervisors (ESFS).[19] This context is taken into account in the FSAP Update.

A. Cross-Cutting Issues

Supervisory architecture

Domestic

35. **While BaFin has a mandate to regulate and supervise the national financial system, the Bundesbank is responsible for the ongoing monitoring of the banking system and stability, while the BMF oversees BaFin and has formal regulatory powers.**[20] Several committees have been established to facilitate cooperation. Furthermore, external auditors have responsibilities to check compliance with regulations and report material deficiencies, while in the savings and cooperative banking sectors the respective associations actively supervise their members.

36. **BaFin has a good deal of de jure and de facto independence.** There are no indications of undue political interference in the day-to-day supervisory processes or decision-making. The legal and supervisory control of BaFin operations by the BMF focuses on the legality and fitness for purpose of BaFin's administrative actions ex post, and does not provide for ex ante involvement in supervisory decisions.

37. **Nonetheless, in some regards responsibility is diffused.** There is an unclear boundary between the implementation of policy and technical issues, which is left to the supervisors, and what is deemed "political," which is deemed the sphere of government. Given the governance questions inherent in the current financial system (see above), there is a possibility of the appearance of deference to certain vested interests or a narrow interpretation of legal powers.[21] Moreover, during the crisis, the government exercised its prerogative to initiate and issue regulations on what would normally be microprudential matters, such as conditions for short selling.

---

[19] Amendments have been made or are forthcoming to European Union (EU) directives on such matters as bank capital requirements, conglomerates supervision, DGS, and bank resolution. The former "Level 3 Lamfalussy Committees" have been converted into the European Supervisory Authorities (ESAs), and a European Systemic Risk Board (ESRB) has been established.

[20] Some subnational elements are assigned to state governments. For example, the state Exchange Supervisory Authorities has oversight over the regional exchanges. The Federal Ministry of Food, Agriculture, and Consumer Affairs has some responsibilities regarding consumer protection.

[21] For example, action in some areas is possible only when a breach of specific regulations has been proven. Yet there are circumstances where presumptive action may greatly reduce risks, at limited cost.

38. **Following the crisis, the authorities debated a merger between BaFin and the Bundesbank at least in the area of banking supervision, but these plans have been replaced by an alternative reform agenda.** The current supervisory architecture has worked adequately well, though no doubt efficiency and effectiveness could be improved. Removing uncertainty about the new supervisory structure is essential. A 10-point plan has been put forward (but not yet adopted); it contains many important elements, such as the strengthening of BaFin's intervention powers and independence, ensuing conditions to retain qualified staff, and reforming BaFin financing and administration.[22]

Cross-border

39. **The German authorities participate actively in European-level financial oversight institutions, such as the ESAs, the ESRB, and numerous colleges of supervisors for individual institutions.** They also cooperate extensively with relevant non-EU jurisdictions. One concern is that some forums involve an unwieldy number of participants, and participation in so many groupings is very time consuming. Consideration could be given to establishing a more tiered structure, with a core group of supervisors (perhaps including the relevant ESA) engaged in ongoing coordinated supervision, and a larger group addressing broader, less urgent issues. This arrangement is in place and seems to work well for two large German institutions; in some cases the German authorities may wish to propose to other home supervisors the introduction of such a structure.

40. **The many international regulatory initiatives will need to be implemented with care.** The EU is moving towards reducing the scope for national discretion, but allowance will be made, for example, to cope with cyclical factors affecting individual countries. In this connection, it may be possible to reduce regulatory burden also by further harmonizing reporting requirements and detailed implementation rules. The financial sector is generally concerned about the implementation costs of a rapidly changing legislative framework; differences in the timing of implementation between Germany and other states in Europe; and on material differences between the standards set in different countries. Germany has the incentive and the means to play a leading role in limiting adjustment costs, and also finding the right balance between local and international objectives.

Macroprudential policy

41. **The authorities need to flesh out their plans to strengthen macroprudential supervision.** The 10-point plan envisages expanding the Bundesbank's capacity in macroprudential supervision, and sharpening the macroprudential focus of the BMF-Bundesbank-BaFin Standing Committee. The approach seems sensible, but needs to be made operational. The Bundesbank as macroprudential supervisor will need to assess

[22] BaFin is financed from the industry.

domestic, foreign, and regional risk factors. Moreover, it will need to make recommendations to mitigate them that will affect microprudential supervision, and touch areas outside its core competencies, such as fiscal policy or competition policy. One task of macroprudential supervision will be to identify SIFIs and define policy toward them, such as in the setting of the bank levy. In most of these areas, the Bundesbank will not have decision-making power over most relevant instruments; if its public argumentation is insufficient to elicit action by others, considerations could be given to introducing at least an "act or explain" requirement, as used by the ESRB.

42. **To support the new macroprudential function, frequent and open exchange of information between those responsible for micro and macroprudential supervision will be needed to allow both to act swiftly in situations where a regulatory or supervisory response to emerging risk is deemed necessary.** Within the Bundesbank, those responsible for macroprudential analysis will toned access to bank-specific data, which currently are the preserve of microprudential supervisors.

Microprudential policy

Supervisory capacity

43. **The supervisory staff at BaFin and the Bundesbank are generally experienced, and strong efforts have been made to increase staffing levels and expertise, but ongoing efforts will be needed to keep up with financial innovation.** Independence is bolstered by civil service status. However, salaries are relatively low, and it is reportedly difficult to retain staff, especially those with highly technical skills and during periods when the financial sector is booming.

44. **Authorities collect data and other information on financial institutions, but the series collected must be kept under review and timeliness improved to adapt to changing circumstances.** For example, there appears to be no systematic and regular compilation of data that would allow for estimation of core Tier I capital, elements of the proposed liquidity coverage ratio, needs for U.S. dollar funding, or exposure to various sectors (including sovereigns) in other countries—all very urgent issues in the aftermath of the crisis.[23] The reliance on external auditors to conduct on-site examinations contributes to lags in the availability of data;[24] much of the year may have passed before annual data is fully processed. Moreover, reliance on external auditors for certain aspects of control may reduce the familiarity of supervisors with individual institutions, especially those in the second-tier.

[23] Basel III is not yet in force, but many banks have anticipated its introduction, and market participants demand these indicators.

[24] The authorities have shortened their reporting lags, and more data are reported on a semi-annual or quarterly basis.

Efforts to recruit more supervisors and to conduct more on-site inspections are therefore to be applauded.

45. **In this context, lags in the publication of financial sector data should be shortened.** The availability of preliminary data on a timely basis would enhance transparency and market discipline.

Supervisory initiatives and approach to SIFIs

46. **The authorities' approach to SIFIs has been strengthened after the crisis, and further initiatives are underway, but more remains to be done.** The initiatives range from the introduction of very strict measures to limit excessive compensation (where Germany was a leader), to the introduction of a bank levy, to a much closer monitoring of the largest institutions. Moreover, given the global connectedness of the large German SIFIs, an increase of the loss absorbency of their capital (through imposing SIFI surcharges) should be considered.

47. **The introduction of the bank levy should capture the degree of SIFIs' contribution to systemic risk and interconnectedness.** However, the proposed calibration may appear too low to effect a behavioral change by the larger SIFIs, correspond to their contribution to systemic risk, or build up an adequate restructuring fund in the foreseeable future (see below).[25] It is important that the authorities retain the flexibility to be able to periodically reassess the appropriateness of the calibration.

48. **Consolidated supervision of financial conglomerates (and cross-border groups) needs to remain a focus of attention.** While efforts have been made, the global crisis suggests that further strengthening of supervisory practice should remain a priority, and vigilance is warranted on cross-sector risks.

B. Sectoral Issues

49. **As documented in the attached ROSCs, the general level of observance of these standards is very high and most of the enhancements suggested in the 2003 assessment have been put in place.** The authorities are aware that the size and sophistication of the German financial system demand that the supervision go beyond the standards, and they are working to make further improvements, especially those needed to implement the regulatory and financial policy initiatives that have been occasioned by the global crisis.

[25] Analysis using the SCCA (described above) provides one basis for calibrating the levy.

Banking sector

50. **In the aftermath of the global crisis and in view of the prospective introduction of Basel III standards, the authorities are facing the challenge of adopting a more forward-looking approach to supervision.** Some of the banks worst affected by the crisis were those that were known to have expanded rapidly into less familiar financial markets in a "search for yield" because their traditional business lines were stagnant at best. Given the pressures on banks that are anticipated to persist, the authorities have a mandate to induce banks to adopt preemptive measures and, if necessary to adapt their business models, risk management techniques, and capital planning. To address this mandate in full, the authorities must be prepared to impose conditions on a bank—including capital requirements—on the basis of projections of the bank's situation, rather than its immediate situation. Enhancements in stress-testing capabilities and the incorporation of their results in the day-to-day supervision of individual banks will be an important input into such decisions. Moreover, the authorities need to stand ready to demand progressively stronger remedial action as the situation of a particular institution becomes more precarious; to this end it would be useful to have a more formalized "ladder" of supervisory actions commensurate with the nature and seriousness of identified issues in banks.

51. **To meet this challenge, the authorities have begun taking steps to improve the supervision of the level and quality of banks' capital, and banks' risk management practices—both areas where the financial crisis revealed deficiencies.** The authorities have recently obtained important additional legal powers to impose higher capital requirements on problem banks. This power (or the threat of using it) could be used to force the pace of change in an institution that is currently reasonably sound but whose prospects are subject to large risks. At the time of the FSAP Update, operational procedures to use these additional powers had only recently become available, and had not yet been extensively tested in practice. The authorities have been enhancing also their capabilities to supervise risk management practices; a priority will be to ensure that any weaknesses identified are resolutely addresses by a banks' senior management. Furthermore, the supervisor would benefit by being granted full legal powers to vet major acquisitions in advance.

Insurance sector

52. **Insurance regulation and supervision continues to be developed.** For example, new rules have been issued to improve qualitative requirements posed on all the insurance undertakings in the area of corporate governances, risk management, and internal control. The relevant legislation has been amended to extend the scope of supervision to the reinsurance activity. A new risk-based system to select the priorities for the supervision as well as the efficient allocation of supervisory resources has been implemented.

53. **The authorities are aware of the need to continue to develop supervisory capacity.** The incoming prudential regime under Solvency II will require enhancement of

BaFin's supervisory resources, especially for on-site supervision. Given the presence of large, cross-border insurance groups, group-wide supervision needs to be strengthened, as should the level of supervisory cooperation. Experience elsewhere during the crisis suggests that supervision of insurers' and reinsurers' investment activity should be vigilant. In many of these areas, the further refinement of stress-testing techniques would be helpful (see Box 2). BaFin and the local chambers of industry and commerce will need to work closely together to ensure effective implementation of the new EU directive on insurance intermediaries.

Collective investment schemes and securities markets

54. **The legislative and institutional framework for the effective supervision of the securities markets is sophisticated, but a few lacunae need to be filled.** First, the continued existence of "grey market" activity outside the fully regulated market implies that functionally similar financial market products and activities are not subject to the same standard of regulation (this issue is of concern mainly regarding certain closed-end funds and retail-oriented products with embedded options, where regulations on potential mis-selling and services to retail investors are relatively light). Regulations to deal with this issue are in an advance stage of preparation, and that initiative is to be encouraged. Second, in its supervision activities, BaFin relies relatively heavily on the analysis of incoming reports and other data, including annual compliance reports on regulated entities prepared by external auditors. More on-site compliance inspections would help BaFin keep abreast of market developments and emergent issues. Finally, requirements for post-trade transparency for trading on equities markets, while fully compliant with European regulations, applies only at the level of the individual market, and therefore do not facilitate the consolidation and dissemination of post-trade data; a more complete "whole of market" transparency regime would be valuable.

Central counterparties

55. **The German Central Counterparty (CCP) (Eurex Clearing AG) is one of the world's leading derivatives exchanges, especially in fixed income-related produces (Appendix IV Table 4.11).** While governance and oversight is of high standard, BaFin's and the Bundesbank's mandates to regulate, supervise and oversee Eurex is based on its banking status; this provision somewhat constrains the development of a fully articulated regulatory regime for the CCP function.

Anti-money laundering and combating the financing of terrorism

56. **The recent assessment of compliance with the Financial Action Task Force (FATF) recommendations found that Germany had introduced a number of important anti-money laundering and combating of financing of terrorism (AML/CFT) measures,**

which have helped strengthened practice in this area, but further improvements were needed.[26] Weaknesses were identified in provisions criminalizing certain aspects of money laundering and terrorist financing, some requirements on financial institutions (regarding record keeping requirements, monitoring of complex and unusual transactions, and internal controls), and in the sanctions for noncompliance with AML/CFT requirements.

57. **Since the assessment, the authorities have taken steps to enhance further the AML/CFT framework.** Several laws have recently been passed or are in draft, circulars have been issued by BaFin that extend the list of predicate offenses, clarify requirements on financial institutions and others, reinforce operational powers, and strengthen supervisory powers.

IV. Crisis Management Following the Crisis

58. **A more detailed "exit strategy" from financial support measures will need to be defined in the near term.** The financial support provided by the authorities during the crisis contributed to overall financial stability, including for institutions that did not seek assistance. With a view to promoting a viable financial sector going forward and now that the German economy and financial system are recovering, concrete action plans need to be established with regard to the remaining capital injections and the winding-up institutions, taking into account applicable EU rules. Strategic plans should aim at reducing the likely future need for such assistance, in part by raising equity capital or by adjusting banks' balance sheets. Some banks have raised capital since the time of the FSAP Update mission, which suggests that (private) investors have appetite for equity in German banks that have well-thought out business strategies. Other banks should be encouraged to shrink their balance sheets.

59. **The new bank restructuring law, in force since January 2011, significantly strengthens the crisis management framework in Germany.**[27] The law reflects lessons from the crisis. It grants broad powers to the authorities to facilitate more timely and efficient resolution of problem banks that are deemed systemically relevant.[28] The law provides BaFin with a powerful new instrument to transfer the banking business to another institution, a power to be exercised in agreement with the FMSA in case resources are needed to facilitate

---

[26] The detailed assessment report (DAR) was adopted as a FATF mutual evaluation report in February 2010; the DAR and the AML/CFT ROSC were published in March 2010.

[27] The new bank restructuring law reflects many aspects for stronger bank resolution frameworks currently under discussion at the European level, but the authorities recognize that some adjustments to the law might be needed once agreement has been reached at the European level.

[28] Usefully, the definition of systemic relevance under the law, by focusing primarily on aspects such as size and interconnectedness, is sufficiently flexible to recognize that a group of smaller banks that get into difficulties simultaneously may pose a systemic risk, and thus merit treatment under the special regime.

the transfer. In this regard, the process for interagency coordination between BaFin and the FMSA should be set out more clearly. Other new instruments comprise stronger remedial powers, reorganization procedures involving the courts, and the appointment of a special administrator to take over the management of a bank. A complementary tool for the transfer of assets and liabilities suitable for all banks—even those deemed nonsystemic—entering (corporate) insolvency proceedings would facilitate efficient resolution.

60. **Given the complexity and sheer size of some German financial groups, the development of resolution plans seems worthwhile.** In this regard, an explicit legal requirement for the establishment of resolution plans for systemically relevant banks would seem useful. Further, while powers under the new restructuring law may be applied to financial groups that comprise banks, consideration could be given in future to establishing a special resolution regime for nonbank SIFIs.[29]

61. **An important source of resources to facilitate bank resolution is the new restructuring fund administered by the FMSA.** With limited resources initially built up by means of the bank levy, contingency funding arrangements remain important (for example, through its ability to impose special assessments and to draw on residual borrowing authority from the SoFFin fund). Also, clarification is needed as to the interaction between the restructuring fund, the DGSs, and mutual guarantee schemes: it should be acknowledged that stakeholders (including the mutual protection schemes) first share in any burden, after which, in systemic cases, the restructuring fund may be tapped. The DGS should be able contribute to the financing of bank resolution measures, provided the interests of all insured depositors (including those of nonproblem banks) are adequately protected

62. **To complement the stronger bank resolution framework the approach to depositor protection should be made more uniform, predictable, and credible.** The German deposit protection regime is highly fragmented, prefunding is very limited, and its features lack transparency.[30] Confidence among depositors was maintained during the crisis in part because of the authorities' public commitment to fully protect household deposits. Yet, limitations became apparent in the commercial bank's private DGS in connection with the failure of Lehman Brothers, and in the mutual protection schemes run by the savings banks association in the case of some Landesbanken. Hence:

[29] While there is currently an international discussion on how exactly to identify SIFIs, it is at least possible that nonbanks might meet the criteria.

[30] The Basel Committee for Banking Supervision-International Association of Deposit Insurers Core Principles for Effective Deposit Insurance Systems emphasize these issues.

- On the one hand, the current coverage level of €100,000 under the statutory DGS appears broadly appropriate because it covers more than 90 percent of retail deposit accounts. In order to make this coverage applicable for all depositors and to reduce competitive distortions, the mutual protection schemes run by the savings banks association and the cooperative banks, respectively, should be modified to ensure that depositors have a legal claim for the reimbursement of €100,000 (including changes to the legal framework as needed). Groups of banks may wish to maintain additional mutual protection, but markets will demand clarification on the scope of coverage and the scheme's resilience. Key information on the actual financial strength of the various schemes should be made public.

- On the other, the notional coverage levels of the commercial banks' private scheme and the mutual protection schemes are very high by international comparison (unlimited under the mutual protection schemes), and coverage is also very broad (encompassing all liabilities of the institutions under the mutual protection schemes). Such commitments to protect wholesale depositors and other claimants weaken market discipline. In a crisis situation, the ability of the pillar schemes to meet these expectations will either require massive public support, or potentially destabilize the other member banks that need to make good the payouts. Therefore, coverage (or at least, legally binding coverage) should be capped at a level that can be readily funded, so as to enhance the credibility of the regime.[31] To reduce procyclicality, any pillar scheme should build up adequate prefunding.

63. **Mechanisms are in place for the emergency provision of liquidity.** The Bundesbank has comprehensive procedures in place for emergency liquidity assistance (ELA) according to the relevant Eurosystem provisions. The Bundesbank made limited use of its ELA framework during a short period of time in 2008–09. During the crisis, the ECB introduced several changes to the monetary policy operational framework to enhance credit support in the euro area, including the modalities for liquidity provision.

64. **Procedures and tools need to be further developed to handle German global banks.** The BMF, BaFin, and the Bundesbank have established a standing committee to coordinate and facilitate regular discussions on financial stability and crisis-management issues, which acts also as a "single point of contact" for foreign authorities in cross-border crises. Crisis management groups were set up to discuss institution specific cross-border

[31] These schemes are nongovernmental, but they play an important role in financial system stability, and they are afforded a special legal status. The schemes prime facie discourage competition, but are not subject to review under anti-cartel legislation. The operation of mutual protection schemes has been used to justify an exemption from the EU Deposit Guarantee Scheme Directive. Hence, they are a legitimate object of public policy.

crisis management issues.[32] It is encouraging that the German authorities are actively involved at the international fora to deal with cross-border crisis management. They are aware of the importance of an appropriate legal framework and are in the process of developing procedures and tools ex ante for handling the major distress at a German global bank, including how to deal with burden-sharing arrangements and conflict of laws when defining resolution plans.

[32] Drawing on the Financial Stability Board (FSB) Principles for Cross-border Cooperation on Crisis Management, and the EU Memorandum of Understanding on this topic.

APPENDIX I. IMPLEMENTATION OF THE RECOMMENDATIONS OF THE 2003 ASSESSMENT

Table 1. Implementation of the Recommendations of the 2003 Assessment

Recommendations	Reported Action
Encourage Landesbanken to complete reforms to address the phasing out of public guarantees.	Guarantees eliminated from 2005. Some Landesbanken have become private law institutions.
Begin work on creating the legal framework to reduce barriers to consolidation, within or across pillars, and thereby facilitate market-oriented restructuring.	Consolidation within pillars has continued.
Strengthen transparency of public banks, including through disclosure of cost estimates of their activities under their public mandate.	Some Landesbanken publish quarterly reports. Public policy banks have been established in some states.
Publish comprehensive quarterly financial soundness indicators (including for derivatives), and further develop and publish a regular financial stability report.	Annual indicators have been published since 2005. Most indicators on deposit takers are published on a quarterly basis. A system for collecting statistics on derivatives operations was established in 2010.
Extend BaFin's mandate to issue secondary regulations; clarify the relations between the ministry of finance and BaFin; and review the Laws on Credit Institutions and on Insurance Supervision to give the supervisory authorities more discretion in setting specific prudential guidelines.	BaFin's mandate to issue secondary regulations has been extended through various pieces of legislation. A law has been proposed for consideration in late 2010 to formalize the delegation of regulatory powers to BaFin.
Strengthen direct supervisory vigilance by increasing the staffing and expertise of banking and insurance supervision to perform more extensive risk-based supervision.	BaFin and the Bundesbank have substantially increased staffing devoted to on- and off-site supervision, systemic financial stability issues, and the assessment of structured assets.
Continue to refine banking regulations as financial products become more complex by: introducing minimum objective criteria for classifying nonperforming loans (such as a 90-day past due rule) and tightening regulations for the classification of restructured loans to permit more timely monitoring of nonperforming loans; requiring prior notification and approval of intended investments and acquisitions; enhancing monitoring of the financial situation of financial holding groups; strengthening rules to grant and to monitor loans to related parties; and raising standards on the expertise and responsibility of supervisory board members.	Refined loan classification criteria were introduced in 2009. The credit reporting system now includes information on loan performance. No change has been made in the regulation of acquisitions. The Banking Act was amended in 2009 to strengthen oversight of holding companies. Supervision of lending to related parties is viewed as adequate. Guidance on qualifications of bank management was strengthened most recently in 2009/10.
Assess capital adequacy of insurance companies with more sophisticated risk-based methods, and, if	Various measures and practices have been introduced to this end. The process will

Recommendations	Reported Action
necessary, require insurance undertakings to raise capital levels or curtail new business. For the life sector, relax the regulations on returns and profit split with policyholders, while enhancing transparency and market conduct regulations.	culminate in the implementation of Solvency II in 2013. The Federal Constitutional Court has limited the relaxation of regulations on returns and the profit split, but from 2007 insurers to reduce surrender values in case of need. The EU Insurance Mediation Directive was transposed into national law in 2007.
Strengthen supervision of the reinsurance sector and anticipate the main elements of the EU Reinsurance Directive and the International Association of Insurance Supervisors (IAIS) standard on reinsurance supervision.	Various measures and practices have been introduced to this end and in line with EU and IAIS standards. Implementation of Solvency II is expected in 2013.
Accelerate the schedule for the preparation and publication of annual accounts and aggregate statistics for the insurance sector.	Publication deadlines have been advanced one month.
Encourage the observance of the German Corporate Governance Code by mutual insurance companies.	Internal controls and corporate governance rules were strengthened through amendment to the Insurance Supervision Law in 2007.
Strengthen capacity of BaFin and state supervisors to supervise complex securities transactions.	Reporting of trades on regulated unofficial markets was mandated in 2009.

APPENDIX II. RISK ASSESSMENT MATRIX

Table 2. Risk Assessment Matrix

Threat	Likelihood Considerations	Impact Considerations
	Low	**Medium**
Sharp "double dip" recession.	It is possible that, in particular, the U.S. and European economies may suffer another sharp contraction in output. Recovery from the last recession is far from over: there is substantial excess capacity in many industries. Hence, the Germany economy would be very exposed to a drop in demand for capital goods and consumer durables, and also a relapse of consumer confidence in Germany. Moreover, the economies of main partners where German financial institutions are active, such as Central, Eastern and Southern Europe, might suffer a severe contraction. Restricted supply of financing could generate a negative feedback loop in Germany and in partner countries. A rise in energy and commodity prices could induce monetary policy tightening in Europe, raising short-term rates and inverting the yield curve. However, double-dip recession in the U.S. might be associated with monetary easing there, resulting in the appreciation of the euro, which would harm European firms.	German banks' credit quality would be directly affected by the shock to the German export and household sectors, and also to borrowers abroad. They would also suffer market losses on other exposures, for example, to commercial real estate in the U.S. An inversion of the yield curve would adversely affect bank profitability, especially for the retail banks. Nonbank financial institutions would be affected mainly by market losses on securities holdings. Life insurers and pension funds would face a prolonged period of very low long-term interest rates, driving up their liabilities. However, exposures to the "toxic assets" and mispricing that were at the core of the recent global financial crisis seem to have been reduced, and some of the weakest institutions have already been "weeded out." Hence, a sharp but short recession may not generate much systemic risk for Germany.
	Medium	**High**
Very slow growth in Europe and low interest rates.	The accumulation of structural rigidities, fiscal burdens, demographic pressure, and uncertainty could lead to a prolonged period of very low growth in Europe. Unemployment would remain high and rising, investment would be weak, and fiscal crowding out would remain unrelieved. Even some	German banks' traditionally low profitability would be further reduced. Negative feedback to loan supply is possible, while competition for good borrowers would drive down spreads. Banks' ability to meet higher capital requirements would be put in question.

Threat	Likelihood Considerations	Impact Considerations
	deflation is possible. Restricted supply of financing could generate a negative feedback loop in Germany and in partner countries.	Life insurers and pension funds would face a prolonged period of very low interest rates, driving up their liabilities. A flat or negatively sloped yield curve would significantly reduce the profitability of retail banks, which, however, have traditionally been less affected by other conjunctural factors such as GDP growth.
Sustained high sovereign risk.	**Medium** The recent rise in spreads on sovereign debt of vulnerable countries may become entrenched and spill over to a wide class of advanced and emerging market countries, culminating in a return to generalized uncertainty. Corporate spreads and sovereign-linked assets would be forced up, leading to a deterioration in loan performance. It is also possible that the solvency of subnational units of government in some countries may come under greater strain.	**Medium to High** German financial institutions hold substantial amounts of foreign sovereign, sovereign-linked, and subnational government claims. Even without a "credit event," substantial losses would have to be acknowledged, depending on how extensive and acute difficulties may become. Note that this scenario could well be combined with others.
Regulatory uncertainty and regulatory burden.	**High** Uncertainty about the final form and calibration of new regulations is likely to persist for some time. It is possible that regulations are introduced that turn out to have flaws, requiring another round of amendments.	**Low** The money-market banks and large financial groups are most likely to be affected by likely regulatory changes, both directly and through regulatory competition with other jurisdictions. Several groups will need to increase core capital and decrease leverage. Changes in capital requirements may force changes in the ownership structure of some vertically-linked institutions. The EU has advanced relatively rapidly in resolving regulatory uncertainty, for example, through the process of amending financial sector directives. International efforts coordinated largely by the FSB, the Basel Committee, and the Fund now seem likely to yield a compromise: some measures such as on medium-

Threat	Likelihood Considerations	Impact Considerations
		term funding will be moderated, and a long phase-in period will be designed to allow the industry to adapt. Regulatory burden could be a challenge for other financial sectors, such as insurance where Solvency II capital requirements are being introduced, but the effects are more likely to be secular than acute.
Sustained dislocation in funding markets	**Medium** Continued uncertainties about economies in general and the situation of institutions may lead to renewed illiquidity or high premia in funding markets.	**Medium** Certain German banks that are heavily reliant on market funding, including through interbank borrowing, securitization, and the issuance of covered bonds would be most affected, especially if the disruption were sustained. Banks may resort to increased competition for retail deposits, squeezing profitability further. Possibly, U.S. dollar funding would be especially problematic for German banks. Banks with a funding surplus may also suffer lower returns on excess funds placed in “safe havens.” Note that this scenario could well be combined with others.

APPENDIX III. STRESS-TESTING FRAMEWORK

Banks

65. **Two approaches to stress testing banks' solvency were adopted (a) a bank-by-bank balance sheet approach; and (b) a market-based systemic approach.** The two methods complement each other, allowing for a comprehensive coverage of the German banking system on the one hand and the incorporation of spillover effects/contagion on the other. The framework is summarized in the table below.

66. **The balance sheet approach was applied to almost all German banks.** To this end, bank-by-bank data were used to compute the impact of macroeconomic stress on income and capitalization under stress. The National Institute of Economic and Social Research's global macroeconomic model (NiGEM) was used to project relevant variables for Germany and other relevant economies, subject to a predefined GDP path consistent with the scenarios used in concurrent European FSAP Updates.

67. **Estimates account for prospective Basel III regulatory changes, namely (a) a phased adjustment of minimum capital ratios; (b) an increase in RWA foreseen at end-2011 (due to more conservative rules mainly for counterparty risk); and (c) a gradual adjustment of eligible capital.** Behavioral changes of banks were accounted for in terms of credit growth and pay-out of profits, allowing for deleveraging in case of stress, and partial retention of profit by well-capitalized banks. Strains in sovereign (and bank) debt markets and the increase of funding costs under stress were also taken into account. Capital ratios were projected for 3 groups of banks, (a) the large German banks deemed to be systemically important financial institutions, or SIFIs; (b) savings banks; and (c) cooperative banks. This approach was used for both the core tests and some supplementary tests. However, the approach is not appropriate to the very heterogeneous smaller private banks; for them, a battery of shorter-horizon single-factor tests were carried out, and information on the distribution of outcomes obtained.

68. **An approach using a systemic solvency risk model (SCCA) was used to estimate joint, market-implied "residual risk" or "expected losses" of the banking sector; such interdependencies between banks proved critical during the crisis.** The main output answers the question: in the worst cases (say, the worst 5 percent), how large are bank losses expected to be? The analysis focused on illustrating the evolution of this "residual risk" in the course of the crisis, and projecting them over 2011–15 (incorporating the same macroscenarios and satellite models as used under the balance sheet approach). To capture heterogeneity across banks, the sensitivity of their market-implied residual risk was estimated using an advanced option pricing methodology to capture the influence of various macroeconomic and financial variables, and based on daily data from credit markets during 2005–January 2011.

69. **The core liquidity tests were top-down "reverse" tests (that is, the proportion of "failed" banks is estimated as stress is increased).** They aim to assess potential vulnerabilities to short-term liquidity shocks, allowing different outflows of retail and wholesale funding, and illiquidity in securities markets. Tests were conducted with and without customer deposit outflows.

Insurance

70. **Microprudential stress tests for all German insurers are regularly carried out under BaFin's guidance, while Bundesbank is analyzing the sector's risk from a top-down perspective.** Ad hoc tests are run, for example, on the effects of low interest rates. The tests assess the potential reduction of the value of the assets under stress, accounting for asset price risks and credit risk. On the liability side, the solvency requirements according to Solvency I are used as a buffer against technical provisions. Estimates account for the growth of business, risk mitigations, hidden reserves, and specific insurer risk elements (for example, free provisions for bonuses and rebates).

71. **Stress tests will need to be regularly revised and adapted to Solvency II.** The tests appear adequate for most (smaller) insurers, but should be complemented by sophisticated tests for the larger insurers. The authorities should consider running multi-period tests on a regular basis; the insurance sector tends to be affected by slower-moving trends rather than short-term shocks, and feedback through profitability and retained earnings is likely to be strong. To this end, the tests could be informed by market indicators, for example, to assess potential shocks to asset values. Also, higher risk-sensitivities should be included in the assessment of insurance and other risks on the liability side; actuarial estimates are reportedly conservative, but long run vulnerabilities may be more on the liability than the asset side. Liquidity risks should also be kept under review, especially for life insurers, so as to better monitor companies' risk management in this area. Efforts should be made to improve the analysis of group-wide stability and linkages to the banking sector, notably where insurance companies belong to financial conglomerates and networks.

Table 3. Germany: Overview of Stress-Testing Framework

		Solvency Stress Tests	Liquidity Stress Tests
1	**Who performed the stress tests**	IMF FSAP team & authorities for some tests	
2	**Institutions covered/market share**	• Balance sheet (B/S) approach: Scenario analysis for about 1,700 banks (87 percent of system). • Systemic CCA approach: 13 largest banks (~40 percent of system). • Sensitivity analysis for remaining institutions (200 small private banks, 13 percent of system).	• B/S type tests: All supervised German universal banks (~1,900/100 percent); results reported for four groups. • Supplementary tests for about 1,600 banks by FSAP team.
3	**Severity of shocks**	• Baseline: October 2010 WEO projections for key macro-financial variables (GDP growth and interest rates). • Scenario 1: Double Dip: 2 standard deviations (SD) GDP decline with respect to baseline (maximum 5.4 percentage point deviation), and spike in short-term interest rates. • Scenario 2: Slow Growth scenario (cumulative 4.0 percentage point deviation). • Scenario 3 ("supplementary" stress test): 2.6 SD with respect to baseline. • Sensitivity analysis: up to 50 percent increase in loss rates, default of three largest borrowers.	• Implied Cash Flow Tests: Cumulative outflow of about 60 percent of wholesale funding and 15 percent of customer deposits. • Supplementary test: foreseen Basel III ratios.
4	**Data used**	• Projected end-2010 data, supplemented by recent data on capitalization. • Supervisory data, except for scenario 3 and supplementary liquidity analysis that used publicly available data, and CCA where market data was used.	
5	**Risk horizon**	• Scenario tests: 5 years (2011-15). • Sensitivity analysis: immediate.	• 1 week, 1 month, 1 year (depending on test).
6	**Metrics (hurdle rates)**	• Tier 1 and CAR capitalization (Basel III ratios depending on the year). • Hurdle rate for scenario 3 also included Core Tier 1 Ratios (Basel III) and a voluntary capital buffer in anticipation of the graduated introduction of capital cushion for procyclicality, equal to 2.0 percentage points added to core Tier 1/Tier 1.	• Implied Cash Flow Tests: Survival period. • Basel III liquidity ratios.
7	**Positions and risk factors included**	• All on- and off-balance sheet positions, except for sensitivity tests for 200 small private banks. Scenario 3 had a specific focus on the banking book (sovereign debt and bank debt holdings). • Risks comprised credit risk, including counterparty credit risk; market risk; operational risk; and explicit simulation of contagion/spillovers risks (captured by the systemic CCA). • Income was forecasted under stress (net interest income, trading income, commission and fee income, operating expenses; funding costs).	• Bank run type stress scenario, wholesale funding markets and/or deposits affected, fire sales of assets (haircuts). • Basel III ratios: withdrawal of funding & fire sales of assets, accounting for maturity profile of bank.
8	**Methodology**	• B/S approach and Systemic CCA. • Simulation of macrofinancial linkages via satellite models (net interest income, net commission and fee income, trading income, operating expenses, credit losses). • Explicit simulation of Basel III (hurdle rates, capital definition, RWAs). • Simulation of bank behavior (credit growth, payout ratio; asset growth).	• Reverse implied cash flow test. • Basel III liquidity ratios.

APPENDIX IV. STATISTICAL APPENDIX

Table 4.1. Germany: Selected Economic Indicators

Total area	357,022 square kilometers
Total population (2010)	81.6 million
GDP per capita (2010)	US$ 40,631

	2005	2006	2007	2008	2009	2010	2011 1/	2012 1/
				(Percentage change)				
Demand and supply								
Private consumption	0.3	1.4	-0.2	0.7	-0.2	0.5	1.3	1.2
Public consumption	0.4	1.0	1.6	2.3	2.9	1.9	1.4	0.6
Gross fixed investment	0.9	8.0	4.7	2.5	-10.1	6.0	8.2	3.4
Construction	-3.0	4.9	-0.5	1.2	-1.5	2.9	6.7	3.5
Machinery and equipment	5.4	11.7	10.7	3.5	-22.6	10.9	11.0	3.5
Final domestic demand	0.4	2.6	1.2	1.4	-1.7	1.9	2.7	1.5
Inventory accumulation 2/	-0.4	-0.2	-0.1	-0.2	0.1	0.5	-0.9	-0.1
Total domestic demand	0.0	2.4	1.3	1.2	-1.9	2.4	2.1	1.5
Foreign balance 2/	0.7	1.1	1.6	-0.1	-3.2	1.3	1.2	0.6
GDP	0.9	3.6	2.8	0.7	-4.7	3.5	3.2	2.0
Output gap (In percent of potential GDP)	-1.3	0.9	2.4	2.0	-3.8	-1.6	0.0	0.2
Unemployment, Prices and incomes								
GDP deflator	0.5	0.2	1.7	1.3	1.3	0.7	0.2	1.1
Consumer price index (harmonized)	1.9	1.8	2.3	2.8	0.2	1.2	2.5	1.6
Unit labor cost (industry)	-2.9	-3.9	-1.8	7.6	15.7	-8.1	0.9	2.2
Personal saving ratio (in percent)	10.5	10.6	10.8	11.7	11.1	11.4	11.0	10.9
Unemployment rate (in percent) 3/	11.2	10.2	8.8	7.6	7.7	7.1	6.3	6.2
				(in percent of GDP)				
General government								
Expenditure	46.8	45.3	43.6	43.8	47.5	46.6	45.8	45.1
Revenue	43.4	43.7	43.8	43.9	44.5	43.3	43.9	44.0
Overall Balance	-3.4	-1.6	0.3	0.1	-3.0	-3.3	-1.9	-1.1
Structural Balance	-2.7	-2.2	-0.9	-0.5	-1.0	-2.3	-1.8	-1.3
				(Percentage change)				
Money and quasi-money (M3) 4/ 5/	5.2	4.9	10.7	9.7	-1.5	4.4	3.8	...
Credit to private sector 4/	2.1	3.4	3.3	6.6	-0.5	-1.9	-0.8	...
				(Period average in percent)				
Interest rates								
Three-month interbank rate 6/	2.1	3.1	4.3	4.6	1.2	0.8	1.1	...
Yield on ten-year government bonds 6/	3.6	3.8	4.3	4.1	3.3	2.8	3.1	...
Exchange rates								
Euro per US$ (annual average) 6/	0.80	0.80	0.73	0.73	0.68	0.76	0.73	...
Nominal effective rate (1990=100) 7/	114.7	114.9	119.7	120.7	122.2	114.8	117.0	...
Real effective rate (1990=100) 8/	103.2	100.2	101.5	100.5	106.3	99.3	100.4	...

Source: German authorities, and staff estimates.

1/ IMF staff estimates and projections.
2/ Growth contribution.
3/ Eurostat definition.
4/ Data for 2011 refer to the change in February.
5/ Data reflect Germany's contribution to M3 of the euro area.
6/ Data for 2011 refer to February.
7/ Data for 2011 refer to March.
8/ Based on relative normalized unit labor cost in manufacturing. Data for 2011 refer to February.

Table 4.2. Germany: Structure of the Financial System

	2003					2008					2009					2010 1/	
	Number of			Financial sector assets		Number of			Financial sector assets		Number of			Financial sector assets		Number of	Financial sector assets 1/
	Institutions	Branches	Employees	(Billions of Euro)	(percent of total)	Institutions	Branches	Employees	(Billions of Euro)	(percent of total)	Institutions	Branches	Employees	(Billions of Euro)	(percent of total)	Institutions	(Billions of Euro)
Depository institutions	**2,199**	**36,575**	**725,550**	**6,299**	**76.8**	**1,981**	**39,531**	**685,550**	**7,956**	**79.3**	**1,939**	**39,411**	**673,500**	**7,510**	**77.0**	**1,919**	**8,455**
Commercial banks	261	5,105	…	1,804	22.0	273	11,277	…	2,455	24.5	278	11,496	…	2,192	22.5	280	3,056
of which:																	
Big banks	4	2,221	…	1,045	12.7	5	8,536	…	1,467	14.6	4	8,773	…	1,292	13.3	4	2,107
Regional and other banks	173	2,861	…	671	8.2	164	2,656	…	791	7.9	170	2,620	…	717	7.4	168	746
Branches of foreign banks	84	23	…	88	1.1	104	85	…	197	2.0	104	103	…	182	1.9	108	204
Landesbanken	13	571	40,500	1,346	16.4	10	482	39,250	1,563	15.6	10	475	38,750	1,458	15.0	10	1,508
Savings banks	491	14,757	271,900	1,000	12.2	438	13,457	251,400	1,071	10.7	431	13,266	249,600	1,073	11.0	429	1,084
Regional institutions of credit cooperatives	2	12	5,400	187	2.3	2	12	5,100	273	2.7	2	11	5,000	249	2.6	2	265
Credit cooperatives	1393	13,201	168,250	566	6.9	1197	12,344	159,250	668	6.7	1157	12,144	158,300	690	7.1	1138	706
Mortgage banks	25	76		872	10.6	19	56		842	8.4	18	65		771	7.9	18	726
Banks with special functions	14	31	11,400	524	6.4	17	31	13,450	896	8.9	18	30	13,100	883	9.1	18	911
Building and loan associations	27	2,822	17,600	173	2.1	25	1,872	16,400	188	1.9	25	1,924	15,700	194	2.0	24	199
Mutual funds	**6532**	…	…	**842**	**10.3**	**6050**	…	…	**910**	**9.1**	**5969**	…	…	**1027**	**10.5**	…	…
Non-depository financial institutions																	
Insurance companies 2/	**651**	…	…	**1,060**	**12.9**	**1354**	…	**195,471**	**1,167**	**11.6**	**1313**	…	**187,668**	**1,212**	**12.4**	…	…
Life	109	…	…	609	7.4	100	…	33865	689	6.9	99	…	28099	707	7.3	99	…
Nonlife	241	…	…	109	1.3	278	…	113,825	287	2.9	272	…	108,297	301	3.1	266	…
Reinsurance	…	…	…	…	…	41	…	10,481	191	1.9	38	…	10,372	204	2.1	40	…
Others (incl. those supervised by Laender)	301	…	…	342	4.2	935	…	37,300	…	…	904	…	40,900	…	…	…	…
Pension funds 3/						180	…	1,908	117	1.2	182	…	1,873	**122**	1.3	183	…
Total financial system				**8,201**					**10,033**					**9,749**			…
Memorandum items:																	
Bank majority-owned by foreign banks	56	624	…	…	…	52	1,453	…	…	…	48	1,435	…	…	…	…	…
Foreign banks	129	647	…	380	4.6	148	1,538	…	908	9.1	148	1,538	…	798	…	…	…

Source: BaFin, Bundesbank.

1/ 2010 data are preliminary. Please note that in 2009 the accounting rules followed by banks (MFIs) in Germany were amended via the Act Modernising Accounting Law (BilMoG). German banks (MFIs) are affected beginning with the figures for December 2010. The main effect is that all derivatives acquired for trading purposes must now be reported on a gross basis on the balance sheet.

2/ Fronm 2008 including Burial Funds supervised by BaFin and many small insurance companies supervised by the Länder.

3/ Financial sector assets for pension funds include assets which risks are born by the policyholders.

Table 4.3. Germany: Foreign Claims of German Banks, on Selected Countries, by Sector of the Immediate Borrower

(percentage share of total bank assets)

	end-2009				end-2010			
		of which: claims vis-à-vis				of which: claims vis-à-vis		
Debtor country	Total	banks	enterprises	general government	Total	banks	enterprises	general government
All countries	30.5	9.7	18.0	2.9	26.9	8.8	15.5	2.5
Euro-area member states	12.7	4.9	6.1	1.8	10.7	4.0	5.2	1.6
of which:								
Austria	0.9	0.6	0.1	0.2	0.8	0.5	0.1	0.2
Belgium	0.4	0.1	0.1	0.1	0.4	0.2	0.1	0.1
France	1.8	0.9	0.7	0.2	1.7	0.9	0.6	0.2
Greece	0.4	0.1	0.1	0.2	0.3	0.0	0.1	0.2
Ireland	1.7	0.5	1.2	0.0	1.1	0.3	0.8	0.0
Italy	1.8	0.6	0.6	0.6	1.5	0.4	0.5	0.5
Luxembourg	1.3	0.3	1.0	0.0	1.4	0.4	1.0	0.0
Netherlands	1.4	0.4	1.0	0.0	1.4	0.4	0.9	0.1
Portugal	0.4	0.2	0.1	0.1	0.3	0.1	0.1	0.1
Spain	2.2	1.0	0.9	0.3	1.6	0.7	0.7	0.3
Other EU countries	6.5	2.3	3.8	0.4	5.9	2.0	3.6	0.3
of which:								
United Kingdom	4.6	1.6	2.9	0.1	4.2	1.4	2.7	0.0
Rest of world	11.3	2.5	8.0	0.7	10.3	2.9	6.8	0.6
of which:								
United States	4.9	0.6	4.2	0.2	4.4	1.0	3.2	0.2

Sources: Deutsche Bundesabank; and staff estimates.

1/ Included banks' foreign branches and subsidiaries. These balance sheet exposures are based on the monthly Bundesbank survey of banks' external status. The scope of the aggregated data corresponds to the "Consolidated foreign claims of reporting banks—immediate borrower basis" e published by the Bank for International Settlements. The data denote the gross exposure of German banks vis-à-vis borrower countries.
· The measures taken by the reporting institutions to hedge against risks are disregarded.

Table 4.4. Germany: Core Set of Financial Soundness Indicators for Banks

(Percent)

	2005	2006	2007	2008	2009	2010Q2	2010 6/
Capital adequacy 1/							
Regulatory capital to risk-weighted assets	12.2	12.5	12.9	13.6	14.8	14.7	16.1
Commercial banks	11.6	12.5	13.3	13.5	14.9	14.1	15.4
Landesbanken	12.1	11.7	11.6	12.7	14.9	15.0	17.1
Savings banks	12.5	13.0	13.0	14.4	14.7	15.1	15.1
Credit cooperatives	12.1	12.2	12.9	14.2	14.0	14.7	14.7
Regulatory Tier I capital to risk-weighted assets	8.0	8.2	8.5	9.5	10.8	10.8	11.8
Commercial banks	7.9	8.4	10.6	10.3	12.1	11.7	12.9
Landesbanken	7.3	7.1	7.1	8.3	10.5	10.5	12.1
Savings banks	8.0	8.4	8.4	9.5	9.7	9.9	9.9
Credit cooperatives	8.5	9.1	8.7	9.7	9.5	9.8	9.8
Asset composition and quality							
Sectoral distribution of loans to total loans							
Loan to households	28.5	27.6	25.6	24.4	26.3	...	26.2
Commercial banks	24.8	23.9	21.8	20.5	23.2	...	22.4
Landesbanken	6.8	6.2	5.2	4.9	5.2	...	5.4
Savings banks	62.2	61.1	58.2	56.4	57.6	...	57.7
Credit cooperatives	69.3	68.5	66.3	63.5	66.4	...	67.0
Loans to non-financial corporations	14.5	14.3	14.1	14.5	14.8	...	14.6
Commercial banks	13.3	12.6	12.4	12.6	12.9	...	12.1
Landesbanken	16.7	17.0	16.2	17.8	18.2	...	18.4
Savings banks	17.6	17.3	17.6	18.7	19.6	...	20.1
Credit cooperatives	12.0	12.1	12.4	12.7	13.6	...	14.3
NPLs to gross loans 5/	4.0	3.4	2.6	2.9	3.2	...	...
Commercial banks	3.3	2.6	1.8	2.0	2.5	...	...
Landesbanken	2.9	2.0	1.5	2.4	3.4	...	...
Savings banks	6.6	5.9	5.1	4.7	4.1	...	...
Credit cooperatives	7.3	6.6	5.5	5.1	4.4	...	...
NPLs net of provisions to capital 5/	34.6	28.6	21.6	25.3	42.4	...	...
Commercial banks	30.6	24.6	15.8	20.0	53.1	...	...
Landesbanken	25.0	16.1 4/	11.3	27.6	37.3	...	...
Savings banks	50.4	43.6	35.3	33.0	35.0	...	...
Credit cooperatives	49.0	43.0	35.9	33.3	41.9	...	...
Earnings and profitability							
Return on average assets (after-tax)	0.3	0.3	0.2	-0.3	-0.1	...	...
Commercial banks	0.5	0.3	0.5	-0.5	-0.2	...	...
Landesbanken	0.2	0.3	0.0	-0.4	-0.3	...	...
Savings banks	0.3	0.2	0.2	0.1	0.2	...	...
Credit cooperatives	0.5	0.5	0.3	0.2	0.3	...	...
Return on average equity (after-tax)	9.2	7.5	4.7	-8.1	-2.0	...	...
Commercial banks	15.5	9.1	15.6	-15.1	-5.7	...	...
Landesbanken	5.6	9.7	0.9	-12.2	-8.5	...	...
Savings banks	5.6	5.0	4.2	2.1	4.4	...	...
Credit cooperatives	9.0	8.5	5.2	4.0	5.1	...	...
Interest margin to gross income	68.2	68.2	72.9	84.6	72.5	...	...
Commercial banks	55.3	61.8	66.3	94.6	63.0	...	...
Landesbanken	83.2	70.3	91.6	90.2	81.5	...	...
Savings banks	79.0	77.7	75.2	76.0	78.6	...	...
Credit cooperatives	74.7	65.2	71.3	69.9	76.9	...	...
Trading income to gross income	...	.....	...	...	...	...	...
Noninterest expenses to gross income	61.0	62.3	64.9	73.4	65.1	...	...
Commercial banks	59.8	66.0	65.5	93.6	73.5	...	...
Landesbanken	59.3	53.6	61.1	54.6	51.1	...	...
Savings banks	66.0	65.8	69.5	68.8	66.6	...	...
Credit cooperatives	70.0	64.3	70.5	68.3	68.3	...	...
Liquidity							
Liquid assets to total short-term liabilities 3/	122.0	120.9	119.4	120.3	144.1	138.6	137.0
Commercial banks	110.7	111.8	113.0	114.8	131.1	127.9	126.2
Landesbanken	122.4	118.8	115.5	114.5	135.9	132.2	131.2
Savings banks	224.2	206.9	190.9	161.8	225.7	220.1	216.2
Credit cooperatives	181.4	174.8	167.1	146.1	204.2	194.0	203.8
Sensitivity to market risk							
Net open positions in FX to capital	6.9	6.7	6.9	6.6	5.3	6.0	4.4
Commercial banks	5.7	10.1	6.2	4.5	3.9	6.1	2.2
Landesbanken	5.6	4.2	6.6	5.2	5.5	6.0	5.5
Savings banks	11.7	10.1	10.9	12.2	9.6	8.5	9.1
Credit cooperatives	14.0	11.3	10.7	8.2	7.9	8.7	8.1

Source: Deutsche Bundesbank. The authorities provide annual data only and disseminate them once a year.

1/ A methodological break in the supervisory time series on the capital adequacy of German banks has taken place in 2007 due to changes in the regulatory reporting framework, following Basel II.

2/ 1998-2006 according to Capital Adequacy Regulation, Principle I. Since 2007 according to Solvency Regulation.

3/ 2000-2009 data compiled in accordance with IMF's FSI Compilation Guide. Data not available before 1 July 2000.

4/ Due to one off data availability, comparability of 2006 data with other years limited.

5/ A methodological break in the NPL series has taken place in 2009. Due to changes in the regulatory reporting framework for the audit of German banks.

6/ 2010 data are preliminary.

Table 4.5. Germany: Encouraged Financial Soundness Indicators for Banks

(Percent)

	2005	2006	2007	2008	2009	2010Q2	2010 */
Deposit-taking institutions							
Capital to assets	4.1	4.3	4.3	4.5	4.8	4.4	4.3 */
Commercial banks	4.4	4.4	4.3	5.0	5.4	...	4.1 */
Landesbanken	4.0	3.8	3.7	3.8	4.7	...	3.9 */
Savings banks	4.6	4.8	4.9	5.0	5.2	...	5.4
Credit cooperatives	5.4	5.6	5.5	5.3	5.2	...	5.5
Geographical distribution of loans to total loans							
Germany	75.2	72.6	71.1	71.2	72.9	72.7	...
EU-member countries	17.3	19.5	20.4	20.2	19.5	19.4	...
Others	7.5	7.9	8.5	8.6	7.6	7.9	...
FX loans to total loans	10.2	10.5	11.5	12.2	11.5	12.1	...
Personnel expenses to noninterest expenses	55.1	56.4	54.7	53.4	54.7	...	...
Commercial banks	50.7	52.5	51.7	47.6	49.4	...	...
Landesbanken	50.5	55.0	51.7	49.7	51.0	...	...
Savings banks	61.8	61.5	58.5	61.1	62.4	...	...
Credit cooperatives	60.1	60.9	59.8	61.0	61.9	...	...
Trading and fee income to total income	31.8	31.8	27.1	15.4	27.5	...	...
Commercial banks	44.7	38.2	33.7	5.7	37.0	...	...
Landesbanken	16.8	29.7	8.4	9.8	18.5	...	...
Savings banks	21.0	22.3	24.8	24.0	21.4	...	...
Credit cooperatives	25.3	34.8	28.7	30.1	23.1	...	...
Funding							
Customer deposits to total (non-interbank) loans	71.8	75.2	76.2	77.7	76.5	74.6	73.6
Commercial banks	85.5	95.7	92.6	90.7	89.7	...	84.9
Landesbanken	40.6	42.9	45.7	44.1	34.6	...	31.5
Savings banks	102.2	103.3	105.4	108.3	109.9	...	106.9
Credit cooperatives	113.6	113.1	114.7	119.6	122.7	...	119.0
Deposits/total assets	65.8	66.0	66.9	67.3	67.3	...	60.8 */
Commercial banks	76.5	76.7	76.6	76.5	77.2	...	58.6 */
Landesbanken	57.3	59.6	62.0	61.3	58.5	...	52.6 */
Savings banks	86.3	85.7	85.2	85.8	86.8	...	86.7
Credit cooperatives	84.6	83.3	83.0	83.8	85.4	...	85.9
Interbank assets/total assets	40.7	41.7	43.1	43.3	41.3	...	35.0 */
Commercial banks	41.3	43.0	45.1	45.5	43.2	...	32.6 */
Landesbanken	57.0	55.6	55.4	51.3	47.7	...	39.1 */
Savings banks	25.2	25.4	26.4	27.9	26.9	...	25.3
Credit cooperatives	27.0	27.1	28.2	30.6	29.9	...	28.2
Interbank liabilities/total assets	28.3	28.4	29.1	28.7	26.7	...	23.4 */
Commercial banks	37.6	36.8	35.7	35.1	32.2	...	24.3 */
Landesbanken	33.1	35.8	38.8	34.7	30.6	...	27.0 */
Savings banks	22.3	21.2	20.1	19.4	18.8	...	17.4
Credit cooperatives	13.2	12.8	13.2	14.8	15.5	...	14.1
Securitized funding/total assets	...	...	...	...	...	...	...
Loans/assets	43.8	42.5	41.2	40.6	42.1	...	...
Commercial banks	41.4	39.5	38.1	36.1	38.5	...	...
Landesbanken	32.0	32.6	32.5	35.2	36.5	...	...
Savings banks	60.4	59.9	59.1	59.0	59.9	...	...
Credit cooperatives	59.8	59.2	58.1	56.4	56.5	...	...
Securities holdings/assets	23.0	23.5	23.0	22.5	23.5	...	...
Commercial banks	19.8	19.7	18.0	18.5	19.2	...	...
Landesbanken	21.4	23.2	22.7	22.1	23.6	...	...
Savings banks	26.8	26.3	24.9	25.0	26.8	...	...
Credit cooperatives	24.1	24.1	23.5	23.9	27.5	...	...
Off-balance sheet operations to total assets	...	...	...	...	...	...	...
of which: interest rate contracts	...	...	...	...	...	...	...
of which: FX contracts	...	...	...	...	...	...	...
Spread between highest and lowest interbank rates 7/	2.0	2.6	4.6	10.5	15.0	...	...
Spread between reference loan and deposit rates 8/	353	317	285	273	342	346	...

Source: Deutsche Bundesbank. The authorities provide annual data only and disseminate them once a year.

1/ Indicator compiled according to definitions of the Compilation Guide on FSIs.
2/ Total debt to corporate gross value added.
3/ Return defined as net operating income less taxes, where net operating income and taxes are compiled according to the FSI Compilation Guide.
4/ Invested capital estimated as balance sheet total less other accounts payable (AF.7 according to ESA 1995).
5/ Excluding principal payments.
6/ Resident enterprises that filed for bankruptcy.
7/ Spread between highest and lowest three month money market rates as reported by Frankfurt banks (basis points).
8/ Spread in basis points.
9/ Profits after tax devided by equity.
10/ Residential property index (yearly average, 2005 = 100); aggregation of
*/ 2010 data are preliminary. Please note that in 2009 the accounting rules followed by banks (MFIs) in Germany were amended by the Act Modernising Accounting Law (BilMoG). German banks (MFIs) are affected beginning with the figures for December 2010. The main effect is that all derivatives acquired for trading purposes must now be reported on a gross basis on the balance sheet.

Table 4.6. Germany: Insurance Sector Indicators

(In euro billions, unless otherwise indicated)

	2003	2004	2005	2006	2007	2008	2009	2010Q2	2010
Life									
Gross premiums	67.8	68.8	72.8	75.2	75.6	76.5	82.4	43.2	...
Net premiums	63.1	63.9	68.7	71.9	71.9	73.1	79.2	...	...
Investment income	32.3	31.2	37.9	35.1	33.1	9.0	37.1	...	...
Net claims	53.2	52.5	53.4	56.0	55.9	60.9	60.3	...	...
Expenses;	10.6	13.5	9.6	10.0	10.1	10.3	9.8	...	...
ROE (after tax)	6%	7%	10%	10%	9%	8%	10%	...	...
Total assets [1]	688.1	716.3	734.2	758.7	778.2	773.0	804.2	...	...
Intangible assets	0.5	0.5	0.4	0.4	0.5	0.5	0.5	...	...
Investments	609.3	619.3	648.7	666.9	694.4	686.5	705.1	725.5	732.0
of which:									
Government securities [2]	68.2	85.3	97.5	101.2	103.8	106.5	127.0	138.9	143.8
Corporate securities [2]	350.0	357.8	370.9	381.4	405.6	419.2	429.7	437.8	438.7
Equity [2]	62.2	54.4	61.6	64.3	66.3	45.1	35.8	36.6	37.0
Real estate and real-estate related	26.0	25.8	26.6	26.9	24.2	24.2	24.4	24.9	26.2
Receivables	11.3	13.0	10.4	11.8	11.7	13.0	13.9	...	...
Reinsurance recoverables	32.7	35.7	28.0	26.0	23.2	21.2	18.7	...	...
Other assets	34.3	47.8	46.6	53.6	48.4	51.9	66.0	...	...
Liabilities [1]	688.1	716.3	734.2	758.7	778.2	773.0	804.2	...	...
Share capital	5.1	5.9	5.8	5.8	6.0	6.2	6.0	...	...
Subordinated loans	0.6	0.7	0.9	1.4	1.4	1.1	1.1	...	...
Technical provisions	590.8	612.2	641.1	670.0	697.3	696.5	730.8	...	...
of which: related to non-term life	...	...	...	...	...	...	...	...	...
Profit reserves	3.3	3.5	3.9	4.3	4.4	4.7	5.1	...	...
Other liabilities	88.4	94.0	82.5	77.2	69.2	64.5	61.2	...	...
Private health insurance									
Gross premiums	24.8	26.5	27.4	28.6	29.5	30.4	31.5	16.7	...
Net premiums	24.6	26.2	27.2	28.3	29.2	30.1	31.2	...	...
Investment income	4.5	4.9	5.8	6.0	6.5	5.2	6.7	...	...
Net claims	15.9	16.5	17.3	17.9	18.9	20.3	21.2	...	...
Expenses	3.1	3.1	3.1	3.2	3.2	3.3	3.5	...	...
ROE (after tax)	8%	9%	10%	10%	9%	6%	6%	...	...
Total assets [1]	102.3	112.7	124.0	135.6	147.8	157.9	169.7	...	...
Intangible assets	0.1	0.1	0.1	0.2	0.2	0.2	0.2	...	...
Investments	97.9	108.1	119.4	130.5	142.3	151.9	163.6	170.3	175.7
of which:									
Government securities [2]	9.9	12.7	15.4	16.2	17.9	22.3	30.0	32.6	35.9
Corporate securities [2]	69.7	77.3	85.6	93.6	102.8	109.7	115.4	118.3	123.0
Equity [2]	7.6	7.5	7.6	9.4	9.9	6.9	6.2	6.3	6.4
Real estate and real-estate related	3.0	3.2	3.3	3.2	3.2	3.5	3.8	3.9	4.2
Receivables	0.8	0.8	0.6	0.7	0.8	1.2	1.2	...	...
Reinsurance recoverables	0.9	0.9	1.0	1.0	1.0	1.1	1.1	...	...
Other assets	2.6	2.8	2.9	3.2	3.4	3.6	3.6	...	...
Liabilities [1]	102.3	112.7	124.0	135.6	147.8	157.9	169.7	...	...
Share capital	1.3	1.3	1.3	1.4	1.5	1.7	1.7	...	...
Subordinated loans	0.0	0.0	0.1	0.1	0.1	0.1	0.1	...	...
Technical provisions	95.6	105.6	116.3	127.7	139.4	149.4	160.7	...	...
Profit reserves	2.0	2.2	2.4	2.6	2.7	2.9	3.1	...	...
Other liabilities	3.4	3.6	4.0	3.9	4.1	3.9	4.2	...	...

Table 4.6. Germany: Insurance Sector Indicators (Concluded)

(In euro billions, unless otherwise indicated)

	2003	2004	2005	2006	2007	2008	2009	2010Q2	2010
Non-Life (without private health insuran									
Gross premiums	61.2	61.8	62.0	62.4	62.1	61.6	63.7	38.0	...
Net premiums	44.8	46.5	48.1	48.5	48.0	48.5	51.1	...	...
Investment income	0.4	0.6	0.6	0.6	0.6	0.6	0.6	...	...
Net claims	31.3	31.8	33.0	32.3	32.9	33.0	36.4	...	...
Expenses	15.7	15.6	15.6	15.9	15.8	15.8	16.3	...	...
ROE (after tax)	4%	3%	4%	5%	4%	3%	4%	...	...
Total assets [1]	153.4	158.9	164.3	174.5	182.3	177.1	176.7	...	...
Intangible assets	0.6	0.5	0.5	0.6	0.7	0.8	0.8	...	...
Investments	108.4	116.7	123.7	132.3	139.4	136.0	136.9	141.9	137.2
of which:									
Government securities [2]	10.1	13.1	15.5	16.8	17.5	18.5	20.6	22.7	21.8
Corporate securities [2]	51.4	58.1	64.0	69.6	75.8	78.4	79.2	80.7	77.6
Equity [2]	27.7	27.1	25.9	27.8	26.4	22.0	20.4	21.4	22.0
Real estate and real-estate related	6.3	5.7	5.8	5.6	5.4	5.3	5.4	5.3	5.2
Receivables	12.0	10.9	9.9	10.6	11.2	10.9	10.4	...	...
Reinsurance recoverables	26.4	24.8	24.6	24.8	24.3	24.1	22.9	...	...
Other assets	6.1	6.0	5.6	6.2	6.7	5.3	5.7	...	...
Liabilities [1]	153.4	158.9	164.3	174.5	182.3	177.1	176.7	...	...
Share capital	13.1	13.4	13.1	14.0	14.3	14.5	13.7	...	...
Subordinated loans	0.6	0.8	0.8	1.1	1.2	3.0	3.0	...	...
Technical provisions	103.7	107.4	112.4	118.9	120.6	121.6	123.8	...	...
Profit reserves	13.4	13.2	13.1	13.8	14.4	13.0	13.5	...	...
Other liabilities	22.7	24.1	24.9	26.7	31.8	25.0	22.7	...	...
Reinsurance									
Gross premiums	51.4	47.2	45.4	44.9	40.1	38.3	39.3	22.2	...
Net premiums	40.2	37.1	35.7	36.0	32.3	31.4	44.8	...	...
Investment income	2.0	2.1	2.1	2.0	1.6	1.2	1.1	...	...
Net claims	27.3	25.5	27.1	23.5	22.4	21.8	26.7	...	...
Expenses	14.0	12.9	12.9	12.1	11.1	10.6	11.0	...	...
ROE (after tax)	3%	7%	3%	13%	12%	8%	9%	...	...
Total assets [1]	263.8	254.6	277.8	278.0	271.1	265.6	251.9	...	...
Intangible assets	0.4	0.4	0.3	0.3	0.2	0.2	0.6	...	...
Investments	...	...	206.2	218.9	206.1	215.6	204.0	202.4	207.5
of which:									
Government securities [2, 3]	...	...							
Corporate securities [2, 3]	...	...	67.7	73.2	65.9	83.2	82.4	80.1	82.2
Equity [2]	...	...	104.4	108.7	117.3	112.4	104.8	103.9	106.7
Real estate and real-estate related	...	...	2.1	2.1	2.5	1.9	1.9	2.0	2.0
Receivables	18.6	14.3	14.7	16.0	17.2	14.6	12.5	...	...
Reinsurance recoverables	22.3	20.7	25.0	21.3	19.7	17.0	12.1	...	...
Other assets	...	...	31.5	21.5	27.8	18.2	22.7	...	...
Liabilities [1]	263.8	254.6	277.8	278.0	271.1	265.6	251.9	...	...
Share capital	38.6	39.9	42.5	45.9	48.3	48.1	47.7	...	...
Subordinated loans	8.0	9.0	11.1	12.3	14.1	13.4	13.0	...	...
Technical provisions	135.8	140.8	154.4	143.1	131.2	126.6	115.4	...	...
Profit reserves	11.6	13.0	12.6	16.0	17.3	17.7	19.0	...	...
Other liabilities	69.8	51.8	57.2	60.6	60.3	59.8	56.9	...	...

Sources:
Premiums, claims, expenses and ROI are based on annual supervisory reporting formats
Total assets (except investments) and liabilities are based on annual supervisory reporting formats
The investments are based on quarterly supervisory reporting formats (more granular reporting)

1) Including the reinsurance part of the technical provisions
2) Indicates that figures are based in part on estimations, due to the fact of investments via investment funds
3) Indicates that government securities and corporate securities are not seperately available. The figure shows total fixed income.

Table 4.7. Germany: Pension Sector Indicators

(In euro billions, unless otherwise indicated)

	2003	2004	2005	2006	2007	2008	2009	2010Q2	2010
Independent pension funds									
Number of pension funds									
Pensionkassen	155	158	156	152	152	153	153	153	152
Pensionsfonds	23	24	24	24	25	27	29	29	30
Number of policy holders (millions)									
Pensionkassen	5.31	6.31	6.65	6.96	7.2	7.38	7.53	...	...
Pensionsfonds	...	...	...	0.47	0.58	0.62	0.67	0.69	...
Financial indicators									
Gross contributions	3.2	4.2	5.8	12.9	11.7	7.8	8.8	0.5	...
Investment income	3.6	3.9	4.4	4.5	4.4	1.9	5.9	...	...
Payouts	2.9	3.0	3.1	3.5	3.8	4.2	4.5	1.0	...
Operating expenses (including acquisition costs)	0.6	0.8	0.5	0.4	0.3	0.3	0.3	...	...
Return on investment (percent; after tax)[1]	4.8	5.1	5.2	4.9	5.0	2.6	4.3	...	...
Total assets	78.5	83.7	91.4	99.0	117.7	123.5	133.1	...	...
of which: Investments [1]	74.5	78.5	85.9	92.3	98.5	103.5	107.0	110.2	128.9
of which:									
Government securities [1,2]	10.9	10.9	12.2	12.8	13.2	16.2	18.4	19.5	18.9
Corporate securities [1,2]	40.6	44.0	49.1	54.2	59.9	65.4	68.7	69.9	70.6
Equity [1,2]	7.7	8.1	9.3	9.8	9.4	6.2	6.1	5.9	5.4
Real estate and real-estate related [1]	4.8	4.7	4.6	4.8	5.3	5.8	5.6	5.6	6.0
Liabilities	78.5	83.7	91.4	99.0	117.7	123.5	133.1	...	...
Technical provisions and liabilities to policyholders	75.0	79.0	85.9	92.0	109.9	115.3	124.0	...	...
Share capital	0.4	0.6	0.9	0.9	1.1	1.8	1.8	...	...
Other reserves	2	2	3	3	3	3	3	...	...

Sources: BaFin.

[1] Data only applicable for Pensionskassen. Return over average of current and past year assets under management.

[2] Figures are based in part on estimations, due to investments via investment funds.

Table 4.8. Germany: Securities Market Indicators

	2005	2006	2007	2008	2009	2010Q2	2010 3/
Collective investment schemes (Open end) offered							
Number of funds							
Germany	6,020	5,884	6,016	6,050	5,969	5,966	5,997
Non-Germany	5,491	6,403	7,459	8,381	8,337	8,312	8,533 4/
Assets under management (euro billions)							
Germany	977	1,027	1,047	910	1,027	1,071	1,137
Non-Germany							
Net value of assets (euro billions)	977	1,027	1,047	910	1,027	1,071	1,137
Assets in (euro billions)	1,008	1,062	1,083	952	1,072	1,119	1,183
Government securities	...	...	...	...	206	223	222
Corporate securities	...	...	...	...	353	367	377
Equity	332	376	377	216	301	313	372
Real estate and real-estate related	104	99	98	109	117	121	120
Other	...	...	...	...	95	95	92
Fund Services Business							
Number of investment managers	82	83	86	88	93	92	92
Number of custodians 1/	1,939	1,898	1,854	1,811	1760	1758	1732
Number of custodians 2/	...	...	...	55	53	53	52
Market liquidity							
Average bid-ask spread in the securities market (corporate securities)	0.060	0.100	0.100	0.300	0.270	0.080	0.070
Market Intermediaries	743	730	724	722	710	706	717
Non-securities prospectuses approved	903	836	811	791	514	243	538
Projected issuing volume (euro millions)	...	20,737	14,693	15,829	9,018	4,264	10,058
Projected total regulatory capital (euro millions)	...	40,755	22,943	24,692	12,692	5,927	14,064

Source: BaFin, Deutsche Bundesbank

1/ Number of reporting agents securities deposits statistics) holding investment certificates
2/ Number of licensed custodians according to section 21 Investment Act for funds custody
3/ 2010 data are preliminary.
4/ Currently in calculation and matching. Final exact value may differ slightly.

Table 4.9. Germany: Household and Real Estate Sector Indicators

(in billions of euro, end of period, unless otherwise noted)

	2003	2004	2005	2006	2007	2008	2009	2010
Disposable income 1/	1,414	1,436	1,464	1,495	1,521	1,570	1,554	...
Household disposable income (percentage change in real terms)								
Debt 2/	1,569	1,574	1,568	1,567	1,545	1,531	1,531	...
Interest expenditures 1/	63	60	58	61	66	67	51	...
Savings ratio (percent) 1/	10.3	10.4	10.5	10.6	10.8	11.7	11.1	11.4
Structure of household's financial assets								
Deposits in banks and currency 2/	1,399	1,448	1,492	1,535	1,621	1,738	1,788	...
Bonds 2/	285	323	320	377	350	338	362	...
Equities (Shares and other equities) including mutual funds 2/	895	912	1,037	1,071	1,114	850	914	...
of which mutual funds 2/	465	462	515	519	549	504	555	...
of which quoted shares 2/	153	164	190	225	204	128	153	...
Pension savings (including life insurance with mutual funds) 3/	1,170	1,227	1,298	1,370	1,445	1,479	1,568	...
Loans 2/								
Ratio of households' fin. liabilities to fin. assets (percent) 2/	41.2	39.7	37.4	35.6	33.8	34.4	32.8	...
Market-based indicators								
Avg. number of bankruptcies per month 4/	2,081	4,094	5,742	8,049	8,770	8,178	8,041	...
Unemployment rate 5/	10.4	10.8	11.1	9.6	8.1	7.4	7.8	7.2
Labor force participation rate 6/	51.6	52.1	52.5	52.5	52.6	52.8	53.0	53.0
Real estate markets								
Real estate prices, new dwellings and resale 7/	100	100	101	101	102	104	...	
Residential real estate loans to total loans	17.8	17.8	17.7	16.5	15.7	16.9	16.2	
Commercial real estate loans to total loans	6.4	6.1	5.8	5.4	5.2	5.8	5.5	

1/ Source: Federal Statistical Office.
2/ Source: Deutsche Bundesbank. Compiled in accordance to ESA 1995.
3/ Source: Deutsche Bundesbank. Pension savings include both claims on insurance corporations and claims from company pensions commitments; both claims are defined in accordance to ESA 1995.
4/ Source: Deutsche Bundesbank. The authorities provide annual data only and disseminate them once a year.
5/ Source: Federal Employment Agency; percent.
6/ Source: Federal Statistical Office. Yearly average rate in percent.
7/ Residential property index (yearly average, 2005 = 100); aggregation of data for new dwellings and resale is not available.

Table 4.10. Germany: Corporate Sector Indicators

(in billions of euro, end of period, unless otherwise noted)

	2005	2006	2007	2008	2009	2010
Capital Structure						
Corporate equity 2/	1,741.3	1,972.2	2,234.6	1,648.7	1,774.7	...
Total corporate debt 3/	1,710.6	1,781.3	1,900.7	2,006.7	1,962.6	...
Financial assets 3/	2,282.4	2,495.6	2,696.6	2,381.5	2,575.2	...
All nonfinancial corporates 3/	0.98	0.90	0.85	1.22	1.11	...
Financial assets/financial liabilities (ratio) 2/	1.33	1.40	1.42	1.19	1.31	...
Profitability						
Return on equity						
All nonfinancial corporates 3/	0.34	0.33	0.32	0.43	0.34	...
Market indicators						
Avg. number of bankruptcies per month	3,070	2,845	2,430	2,441	2,724	...
DAX excluding FIs (composite index, e.o.p.) 4/	596.5	748.3	974.2	508.3	817.6	850.7

Source: German authorities.

1/ For example, deposits and pension claims of employees.
2/ Source: Deutsche Bundesbank. Compiled in accordance to ESA 1995.
3/ Source: Deutsche Bundesbank. Indicator compiled according to definitions of the Compilation Guide on FSIs (domestic consolidated).
4/ End of year TecDAX performance index (comprises the 30 largest technology corporations).

Table 4.11. Germany: Central Counterparty

	2006	2007	2008	2009	2010
1.Number of contracts and transactions cleared			(millions)		
1.1 Equities	73.5	110.0	129.2	94.2	96.5
1.2 Debt instruments	0.009	0.089	0.115	0.085	0.097
1.3 Derivatives	1,526.8	1,899.8	2,165.0	1,687.2	1,896.9
			(Euro billions)		
2. Value of contracts and transaction cleared	108,039.4	127,156.4	116,757.3	80,525.9	99,838.9
3. Average daily value of transactions	423.7	504.6	459.7	317.0	390.0
4. Peak value of transactions	945.2	1,287.1	1,110.3	802.3	841.1
5. Total number of clearing members	119	118	109	117	128
of which:					
5.1 Foreign clearing members	66	66	60	65	75
6. Clearing fund (EUR millions)	752	895	1,392	1,259	912

Source: Eurex.