

Germany: Selected Issues

This Selected Issues paper 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 **October 16, 2003**. 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.

To assist the IMF in evaluating the publication policy, reader comments are invited and may be sent by e-mail to publicationpolicy@imf.org.

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>

Price: \$15.00 a copy

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

GERMANY

Selected Issues

Prepared by Jörg Decressin, Allan Brunner, Christoph Kligen,
and Beata Kudela (all EU1),
Daniel Hardy (MFD) and Martin Mühleisen (WHD)

Approved by the European I Department

October 16, 2003

	Contents	Page
Overview.....		5
I.	Business Investment in the Current Cycle.....	6
A.	Introduction.....	6
B.	Features of the Current Cycle.....	6
C.	The Proximate Causes of the Investment Slowdown.....	12
	Recent developments.....	12
	Econometric evidence.....	15
D.	Conclusions.....	19
	References.....	21
II.	Banking on Three Pillars in Europe: A Cross-Country Perspective on Germany.....	22
A.	Introduction.....	22
B.	What Does the Three Pillar System Look Like?.....	23
	The public sector banks.....	24
	The cooperative sector.....	27
	The commercial banks.....	29
	Structural change and competition.....	29
C.	Three Pillar Banking in Europe.....	30
	The structure and performance of the banking system in European countries.....	30
D.	How Will the Phase Out of Guarantees Affect the Public Sector Banks?.....	51
E.	The Structural Adaptation in the German Banking System.....	53
	Restructuring efforts and hurdles.....	53
	The pros and cons of public sector banking.....	54
	The experience with public sector banks in other European countries.....	58
F.	Summary of Findings.....	59

Appendix I	Data Sources	62
Appendix II	Cyclical and Structural Profitability Developments	63
Appendix III	Measuring Bank's Revenue Mobilization and Cost Control Effectiveness	65
Appendix IV	Gauging the Market Value of Guarantees	67
Appendix V	Does Public Sector Bank Lending Behavior Differ?	72
Appendix VI	Reforms of Public Sector Banks in the EU	75
References	.....	81
III.	Germany's Financial System—International Linkages and the Transmission of Financial Shocks	83
A.	Background	83
B.	Key Transmission Channels for External Shocks.....	87
	Macroeconomic linkages and market correlation	87
	Foreign asset holdings.....	91
	Competing for global capital	94
	Liquidity shocks.....	95
C.	The Past Three Years—A Live Stress Test	95
	Credit losses	96
	Equity losses	100
	Capital flows and market confidence.....	101
D.	Implications for Large Financial Institutions.....	105
	The Big Four	105
	The Landesbanken	107
	Insurance and reinsurance.....	109
E.	Conclusions.....	110
References	.....	112
Text Box		
II-1.	The Savings Bank Pillar.....	26
II-2.	The Cooperatives Pillar.....	28
Tables		
I-1.	Real GDP and Selected Components.....	6
I-2.	Business Cycles in Historical Perspective, 1970-2002.....	7
I-3.	Structural Decomposition of GDP Forecast Error, 1998-2002.....	10
I-4.	User Cost of Capital and Components, 1997-2002	13
I-5.	Average Effective Tax Rates, 1997-2000	14
I-6.	Econometric Models of Business Investment, 1970-2002	18
II-1.	Number of Banks and Branches, 2001	25
II-2.	Business Volume of Banks, 1970-2001	25
II-3.	Selected Countries: Monetary and Financial Institutions Structural Indicators, 2000-01	31

II-4.	Selected Countries: Banking System Structural Data, 2001.....	32
II-5.	Selected Countries: Bank Performance Indicators, 2000-01	34
II-6.	Selected Countries: Bank Performance Indicators, 1997-2001	38
II-7.	Comparison of Observed ROA and NI with Estimated Structural ROA and NI, 2001	40
II-8.	Dependent Variable: Operating Costs and Income and Bank Characteristics, 1997-2001	44
II-9.	Selected Countries: Measures of Revenue Efficiency (Relative to German Banks), 1997-2001	46
II-10.	Selected Countries: Measures of Cost Efficiency (Relative to German Banks), 1997-2001	46
II-11.	Selected Countries: Measures of Revenue Efficiency (Relative to Commercial Banks), 1997-2001	48
II-12.	Selected Countries: Measures of Cost Efficiency (Relative to Commercial Banks), 1997-2001	48
II-13.	Selected Countries: Measures of Competition, 1997-2001	50
II-14.	Selected Countries: Regression Analysis of ROA and NI, 1988-2001	64
II-15.	Selected Countries: Determinants of Fitch's Long-Term Bank Ratings, 2001	69
II-16.	Selected Countries: Effects of Profitability and Balance Sheet Characteristics on Fitch's Individual Bank Ratings, 2001	71
II-17.	Explaining the Net Interest Margin (NI), 1980-2001	73
II-18.	Explaining the Loans-to-Assets Ratio, 1980-2001	74
III-1.	International Exposures of German Banks	86
III-2.	Composition of Bank Assets.....	91
III-3.	Bonds in Circulation	92
III-4.	Internatioanal Portfolio Investment: Assets and Liabilities, 2001	93
III-5.	Combined Asset Position of Households and Nonfinancial Enterprises	94
III-6.	Profitability of Bond Mutual Funds, 1997-2002.....	98
III-7.	Nonfinancial Sector Balance Sheets, 2000-01.....	100
III-8.	Cross-Border Capital Flows, 2000-02	105
III-9.	Combined Investment Portfolio of Insurance Companies	110
 Figures		
I-1.	Comparison of Cycles, 1970-2003	8
I-2.	Change in Real Effective Exchange Rate, 1976-2002.....	9
I-3.	Business Investment to Capital Ratio and GDP Growth, 1970-2002.....	10
I-4.	Long-run Determinants of Business Investment, 1965-2000	11
I-5.	The User Cost of Capital, 1960-2002	12
I-6.	Germany and the United States: GDP Growth, 1960-2002	14
I-7.	Corporate Balance Sheet Indicators, 1970-2002	16
I-8.	Business Investment to Capital Ratio and User Cost of Capital, 1970-2002	17
I-9.	Investment to Capital Ratio (Actual and Predicted), 1985-2002	20
I-10.	Investment to Capital Ratio (Actual and Forecasted), 1993-2005.....	20

II-1.	Selected Countries: Banking System Developments, 1979-2001.....	35
II-2.	Selected Countries: Bank Revenues and Costs, 1979-2001	36
II-3.	Selected Countries: Percent of Banks with Profitability Below a T-bill Rate, 1997-2001	39
II-4.	Selected Countries: Non-Cyclical Developments in ROA, 1988-2001	41
II-5.	Selected Countries: Non-Cyclical Developments in NI, 1988-2001	42
III-1.	Number of Bank's Foreign Affiliates.....	83
III-2.	Foreign Claims by Nationality of Reporting Banks	85
III-3.	United States and Germany: Quarterly GDP Growth.....	88
III-4.	Stock Prices in Selected Major Industrial Countries	89
III-5.	United States and Germany: Correlation of Equity and Bond Prices	90
III-6.	Euro Area: 10-year Government Bond Yields.....	94
III-7.	Macroeconomic Factors Affecting Credit Quality	97
III-8.	Risk Provisions by Large Banks, 2000-02.....	98
III-9.	Foreign Exposures of Major Banking Groups	99
III-10.	Relative Stock Market Performance of Financial Institutions, 2001-2003.....	102
III-11.	Bond Yield Spreads for Major Financial Institutions, 2001-2003.....	103
III-12.	Credit Default Spreads for the Big Four, 2001-2003.....	104
III-13.	Big Four: Income Before Taxes, 2001-02	106
III-14.	Foreign Exposures of Landesbanken, 1998-2002.....	108
III-15.	Net Credit Risk Protection Sold By Landesbanken.....	109

Overview

1. Strains in the corporate and financial sectors during the current economic downswing provide the common thread running through the three chapters of this Selected Issues Paper.
2. **Chapter I focuses on business fixed investment.** In tune with the boom and bust of stock markets, such investment was both atypically strong on the upside of the current business cycle and has been unusually weak on the downside. The chapter notes that weak investment has a structural as well as a cyclical component: as population growth and trend multi-factor productivity growth have slowed in recent decades, a steady decline in the ratio of investment to the capital stock might be expected. As to the cyclical component, the chapter presents evidence that a high degree of financial leverage of corporations may have contributed to the variability of business fixed investment growth during the current cycle. While the usual output-accelerator term still accounts for the bulk of the behavior of investment, the chapter notes that the recovery of investment going forward might be dampened if corporate financial imbalances are slow to correct.
3. **Chapter II analyzes the profitability of Germany's banking sector and looks at restructuring options.** The sector comprises three main pillars: commercial banks; publicly owned savings and regional (Landesbanken) banks; and cooperatives. Compared with other European countries, profitability is on the low side in all three pillars. The main reason appears to be relatively low revenue buoyancy—in particular, banks have been less successful in generating revenues from non-interest sources. The paper points out that restructuring will need to continue in the banking sector, with the impending phase out of public guarantees to the Landesbanken providing an additional spur. The paper reviews the various ways in which public policy could contribute to restructuring, drawing on the experiences of other countries that (at least until recently) have had large public banking sectors. It also looks critically at the economic arguments that might justify maintaining public ownership of nearly half of the banking sector.
4. **Chapter III examines the international dimensions of Germany's financial sector.** The international linkages have continued to grow: German banks are now the second largest cross-border lenders in the world and the insurance sector is a global industry. For the financial sector, these linkages provide major benefits of risk diversification and market opportunities. But they are also a source for transmitting shocks in international markets to the domestic financial system. The chapter documents some of the ways in which global developments have added to the strains on Germany's financial system in recent years, underscoring the importance of ongoing restructuring efforts.

I. BUSINESS INVESTMENT IN THE CURRENT CYCLE¹

A. Introduction

5. **Weak investment growth has been a notable feature of the current downswing** (Table I-1). Much of this weakness reflects the unwinding of the construction boom following reunification. In addition, since the collapse of equity prices in early 2000, business investment has dropped sharply, significantly faster than overall economic activity. In this context, this chapter addresses the following questions: What explains the unusual weakness of investment? Are structural as well as cyclical factors at work? What are the implications for the recovery of growth and investment?

Table I-1. Germany: Real GDP and Selected Components
(Percentage change at 1995 prices)

	1997	1998	1999	2000	2001	2002
Real GDP	1.4	2	2	2.9	0.6	0.2
Private consumption	0.6	1.8	3.7	1.4	1.5	-0.6
Government spending	-0.5	1.9	1.5	0.8	0.4	0.9
Gross private fixed investment	1.5	3.1	3.9	3.0	-5.4	-6.9
Residential construction	0.4	0.3	1.6	-2.6	-7.1	-5.9
Business investment	2.2	4.9	5.2	6.2	-4.5	-7.3
Net exports 1/	0.8	-0.4	-0.7	1.0	1.4	1.6

Sources: Federal Statistical Office; and IMF staff calculations.

1/ Growth contribution.

B. Features of the Current Cycle

6. **The current economic cycle has been driven more by business investment than in previous cycles** (Table I-2 and Figure I-1). The upswing—which peaked in 2000—was much milder than previous upswings, suggesting less over-utilization of capacity when the economy shifted to the downswing. The upswing and the subsequent downturn were characterized by an atypical surge and collapse in business investment.² This boom and bust

¹ Prepared by Allan Brunner and Christoph Klungen (both EU1).

² Business investment includes non-residential construction as well as plant and machinery.

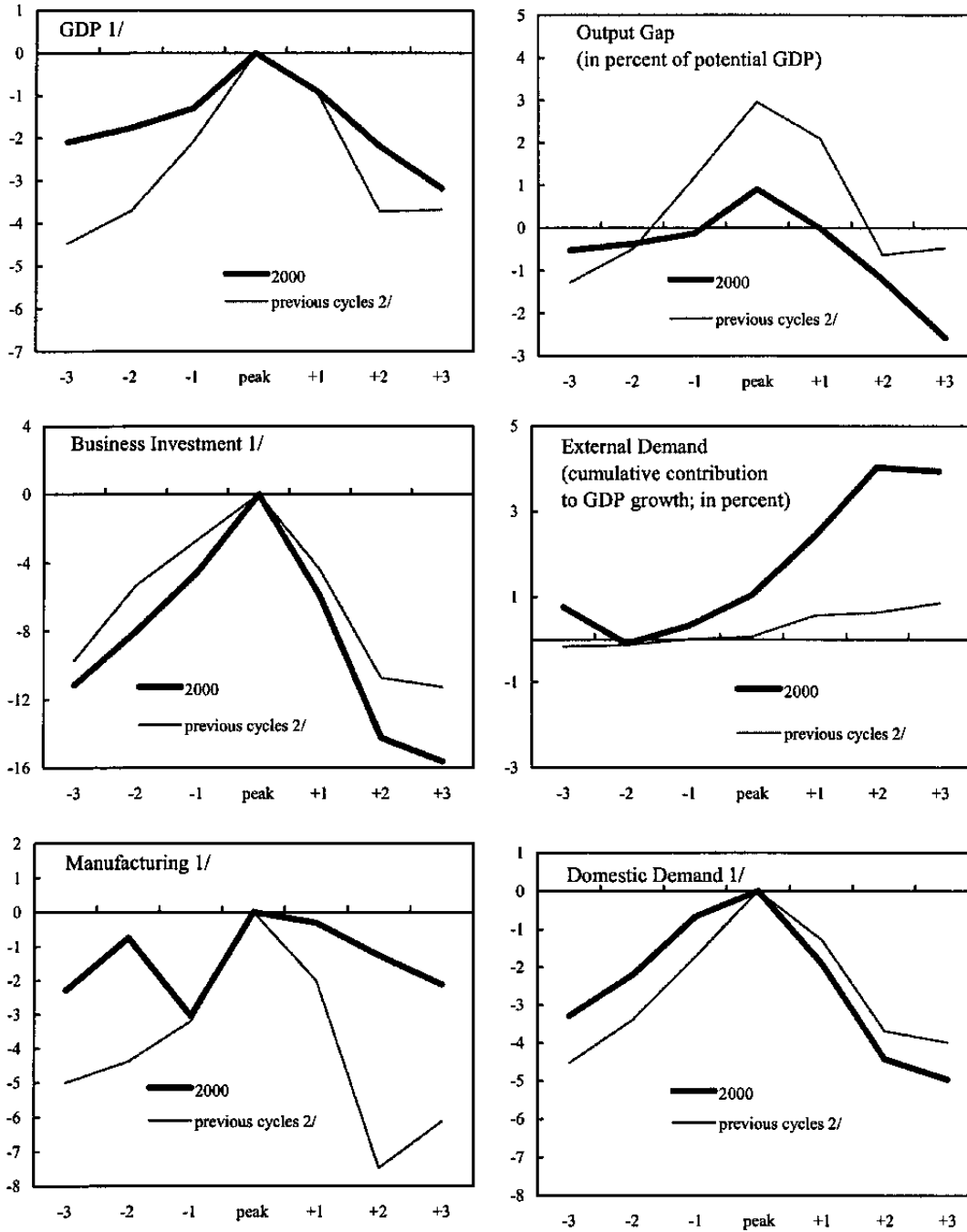
in business investment accounts for about 60 percent of the deviation of GDP from trend on each side of the cycle. The swings in investment have taken place against a generally favorable level of competitiveness, given the weakness (until recently) of the euro (Figure I-2). Reflecting this, net exports have provided more support to recent growth than in previous cycles. The contrast with the recession in the early 1990s, which was preceded by a prolonged appreciation and a slump in net exports, is particularly marked. The remaining components of demand have behaved within historical ranges, although with the ongoing post-reunification adjustment in the construction sector, residential investment made no contribution to the upswing and has been somewhat weaker than usual in the downswing.

Table I-2. Germany: Business Cycles in Historical Perspective, 1970-2002

	Peak in				Average
	1973	1979	1991	2000	
Upswings					
Cumulative deviation of GDP from trend (percent)	3.2	3.6	6.1	1.8	3.7
Contributions (percent of deviation)					
Domestic demand	87	141	84	120	108
Private consumption	27	67	95	65	64
Public consumption and investment	4	12	-46	9	-5
Residential construction	39	4	4	-1	11
Business investment	-4	47	26	60	32
Inventories	22	12	6	-13	7
External demand	13	-41	16	-20	-8
Exports	19	-8	59	102	43
Imports	-6	-34	-43	-123	-51
Downswings					
Cumulative deviation of GDP from trend (percent)	-5.2	-5.6	-3.5	-3.6	-4.5
Contributions (percent of deviation)					
Domestic demand	103	129	79	149	115
Private consumption	23	68	42	44	44
Public consumption and investment	-19	21	-7	7	1
Residential construction	39	4	-10	24	14
Business investment	40	22	51	65	45
Inventories	19	14	2	9	11
External demand	-3	-29	21	-49	-15
Exports	14	5	119	61	50
Imports	-17	-34	-97	-111	-65
Downswing relative to upswing (percent)	162	155	57	203	144

Sources: Federal Statistical Office; and IMF staff calculations.

Figure I-1. Germany: Comparison of Cycles, 1970-2003
(Deviations from trends, unless otherwise indicated)

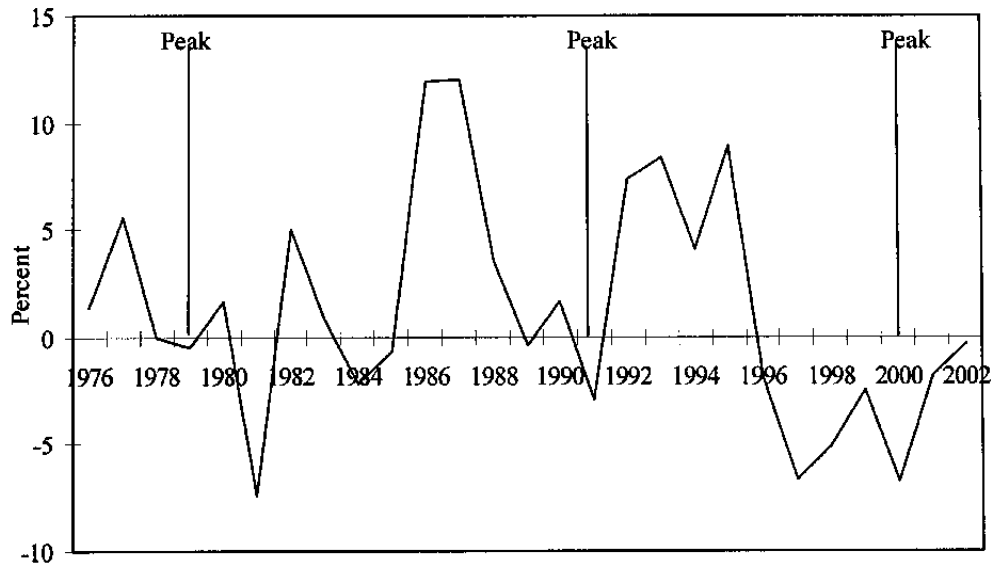


Sources: Federal Statistical Office; IMF, World Economic Outlook; and IMF staff calculations.

1/ Zero denotes the level of series at the peak of the cycle.

2/ An unweighted average of cycles peaking in 1973, 1979, and 1991. The cyclical peak of 1991 coincides with the beginning of data series for unified Germany. Trends are calculated using the Hodrick-Prescott filter.

Figure I-2. Germany: Change in Real Effective Exchange Rate, 1976-2002
(percent change of annual averages)



Source: IMF, International Financial Statistics.

7. **A simple quasi-structural model confirms the atypical behavior of investment in the current cycle.** The model follows Blanchard (1993) and consists of six behavioral equations—one for each component of GDP (private consumption, private residential investment, private non-residential investment, inventory investment, public spending, and net exports)—and the GDP accounting identity. Each component—with the exception of government spending—is assumed to depend contemporaneously on GDP. Government spending is assumed to be weakly exogenous and is used as an instrument to estimate the other behavioral equations. Finally, all components depend on three quarterly lags of each variable, as well as on seasonal and unification dummies. An examination of the forecast errors of the model (actual minus predicted) suggests that business investment was unexpectedly high in 1999-2000, although not spectacularly so, but has since performed unusually weakly (Table I-3).

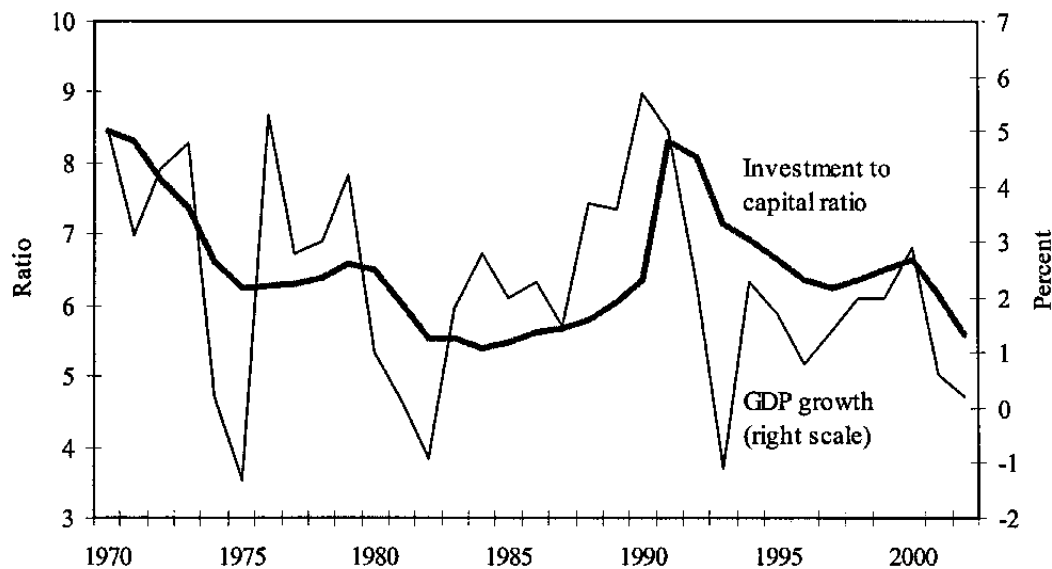
Table I-3. Germany: Structural Decomposition of GDP Forecast Error, 1998-2002

	GDP Forecast Error (percent)	Portion of Forecast Error Due to:					Net Exports
		Private Consumption	Government Spending	Residential Construction	Business Investment	Inventories	
1998	-1.5	-0.4	0.6	-0.3	0.8	0.7	-2.9
1999	-0.8	1.0	-0.2	-0.4	0.3	-1.0	-0.1
2000	-1.9	-1.3	0.5	-0.7	0.5	-1.2	0.6
2001	-0.9	0.9	-0.7	-0.2	-1.2	-2.2	3.2
2002	2.5	-0.7	0.4	0.0	-0.3	0.6	2.5

Sources: Federal Statistical Office; and IMF staff calculations.

8. **Reflecting the weakness seen in business investment, the ratio of business investment to capital has fallen to near historically low levels in recent years** (Figure I-3). Economic theory generally focuses on explaining the ratio of business investment to business capital, which essentially measures the growth rate of the capital stock. During the 70s and 80s, this ratio declined steadily and appears to have responded slowly to changes in GDP growth. The ratio spiked during reunification and subsequently—with the exception of a small surge during the equity market boom in the late 1990s—has resumed a downward trend. Nevertheless, the decline during the current cycle has been much more pronounced (relative to GDP growth) than during any other recent downturn.

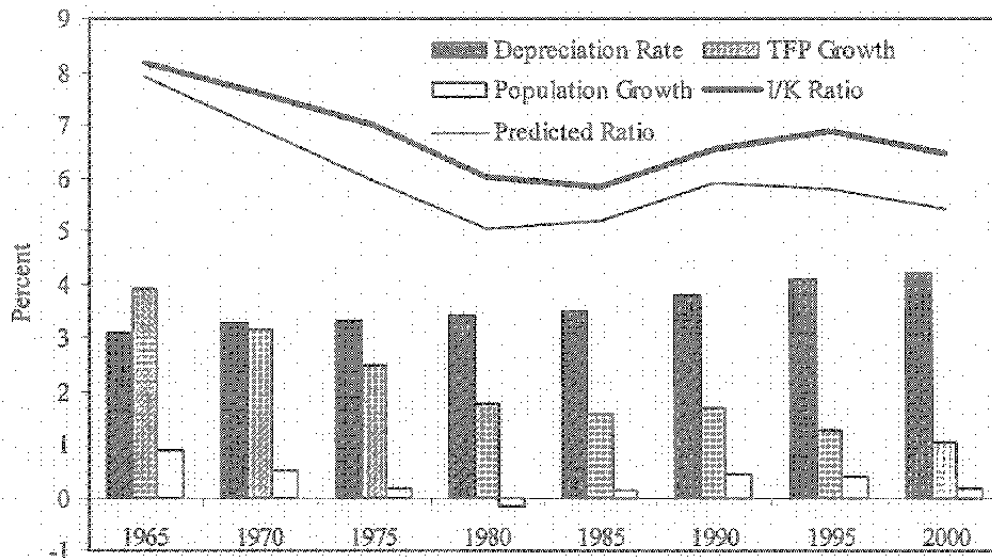
Figure I-3. Germany: Business Investment to Capital Ratio and GDP Growth, 1970-2002



Sources: European Commission; and IMF staff calculations.

9. While the business investment-to-capital ratio has fallen sharply in recent years, current levels are not out of line with economic fundamentals (Figure I-4). Neoclassical growth theory predicts that the optimal steady-state ratio is the sum of: (i) total factor productivity growth, (ii) population growth, and (iii) the capital depreciation rate. For Germany, total factor productivity growth has slowed from an average of 3 to 4 percent in the 1960s to an average of about 1 percent in the 1990s. Population growth has also slowed somewhat over the past several years, while the depreciation rate has edged up a bit. As a result, the predicted optimal investment-to-capital ratio (shown as the thin line) has declined to just under 6 percent, very much in line with movements in the actual investment ratio (shown as the bold line). Indeed, this analysis suggests that weak business investment following unification is more a structural—related to the productivity slowdown—rather than a cyclical puzzle.³

Figure I-4. Germany: Long-run Determinants of Business Investment, 1965-2000 1/



Source: European Commission; and IMF staff calculations.
1/ Ten-year moving averages.

³ Many OECD countries, including Germany, experienced a productivity slowdown in the 1970s and 1980s. Although productivity growth has subsequently rebounded in some countries, TFP growth has not picked up in Germany and other countries. Various explanations for these different experiences and possible policy responses are explored in a forthcoming paper.

C. The Proximate Causes of the Investment Slowdown

Recent developments

10. This section explores a number of possible explanations for the recent cyclical weakness in business investment, including:

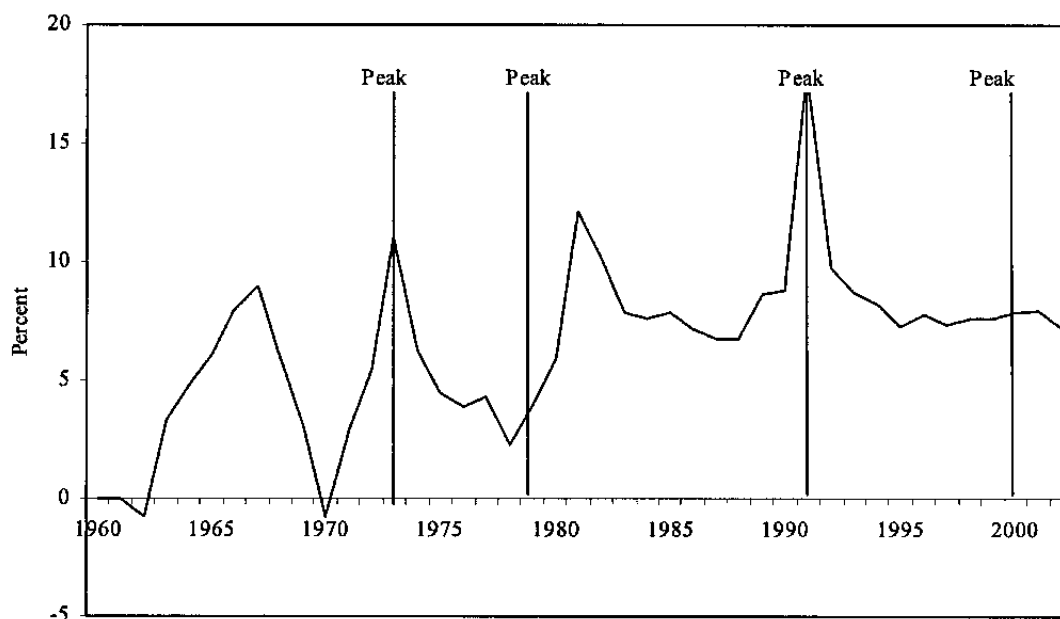
- movements in the user cost of capital,
- the effects of recent tax reforms,
- links with the U.S. economy, and
- the role of corporate balance sheets.

11. In contrast to most previous cycles, there was no run up in the user cost of capital during the expansionary phase of the cycle (Figure I-5). Following Jorgenson (1971), the user cost of capital (UCC) can be defined as:

$$UCC_t = p_t^K (r_t + \delta_t - \pi_t^K)(1 - z_t)/(1 - \tau_t^K)$$

where p_t^K is the price of investment goods relative to GDP, r_t denotes the real interest rate, δ_t represents the capital depreciation rate, π_t^K is the rate of investment goods inflation (relative to GDP), z_t represents the discounted value of depreciation allowances, and τ_t^K

Figure I-5. Germany: The User Cost of Capital, 1960-2002



Source: European Commission; and IMF staff calculations.

is the effective tax rate on business capital. Unfortunately, time-series data on depreciation allowances and capital tax rates are not readily available. However, as argued below, the net effects of changes in these factors are not likely to have been large in recent years. Ignoring these effects for the moment, the user cost of capital has been fairly flat since the mid-1990s, with no discernible increase during the upswing of the current cycle (Table I-4). Moreover, with real interest rates in Germany stabilizing near 2 percent and continued price declines expected for investment goods, business investment is unlikely to benefit from declines in the user cost of capital going forward.

Table I-4. Germany: User Cost of Capital and Components, 1997-2002

	1997	1998	1999	2000	2001	2002
User cost of capital	7.4	7.6	7.6	7.9	7.9	7.3
Real interest rate	2.7	2.4	2.5	4.6	2.7	1.7
Depreciation rate	4.2	4.2	4.3	4.3	4.4	4.4
Investment goods inflation	-0.7	-1.2	-1.3	0.8	-1.3	-1.7

Sources: European Commission; and IMF staff calculations.

12. **Tax reform probably had only a minor impact on investment over the whole cycle.** Tax reforms—which lowered personal tax rates and corporate tax rates on both retained and distributed earnings but substantially reduced depreciation allowances—were announced in 2000 and took effect in 2001. The reduction in depreciation allowances unambiguously raises the effective cost of capital (see above equation), while the tax rate cuts should work in the opposite direction. The impact of the tax cuts on the effective tax rate depends on the extent to which firms finance themselves through equity. IMF (2000) estimates little net effect of these reforms on the *marginal* effective tax rate, although the *average* rate may be affected.

13. **Nevertheless, tax reform may have fanned the late stages of the recent investment boom.** First, since the decrease in allowances was under discussion in 1999 and the new rule was announced in 2000, investors had incentives to bring forward investments that were planned for 2001 and beyond. In addition, the tax reform also provided incentives for firms to distribute earnings that were retained in previous years. Under the old tax law, retained earnings were taxed at a higher rate than distributed profits, and firms received a tax credit when retained earnings from previous years were distributed. Under the new law, firms had until December 31, 2001 to take advantage of the most favorable aspects of the old rule. This undoubtedly lowered (temporarily) the *average* effective corporate tax rate and corporate tax revenues for 2001; following the method suggested by Mendoza and others (1994), simple calculations suggest that average effective tax rates both for corporations and on capital may indeed have fallen in 2001 (Table I-5). However, absent large marginal tax

rate effects, it is unclear what the cumulative impact was on business investment decisions; the overall impression in the literature is that the reforms were unlikely to have important effects on investor behavior in the steady state.

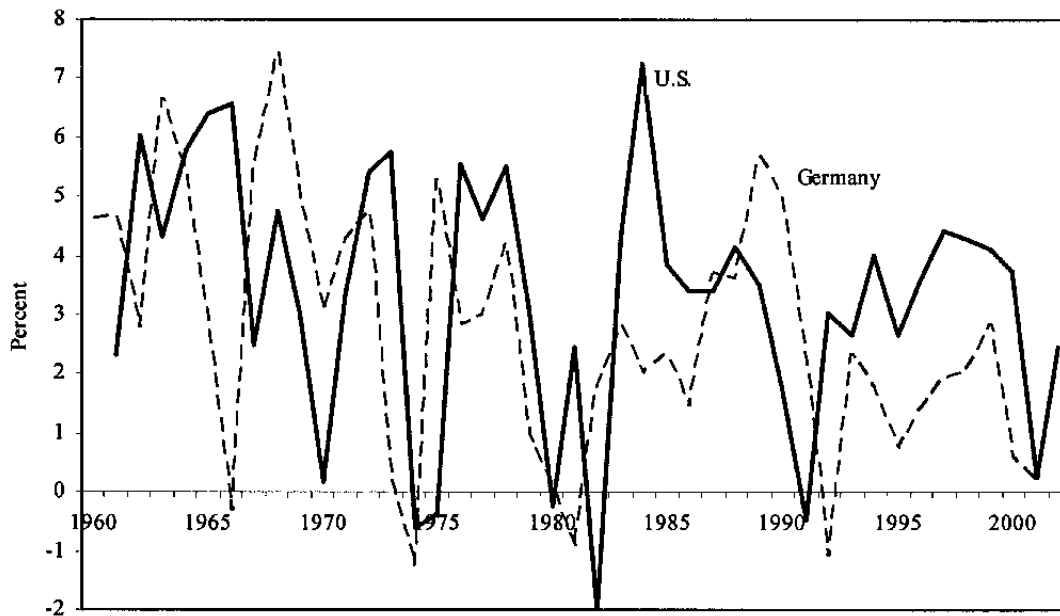
Table I-5. Germany: Average Effective Tax Rates, 1997-2000
(In percent)

Effective tax rate on:	1997	1998	1999	2000	2001
Corporations	12.5	12.5	14.3	15.2	4.7
Capital	20.0	20.4	21.9	22.4	15.9

Sources: OECD; and IMF staff calculations.

14. **Econometric evidence suggests that German investment is affected faster and perhaps move severely by a slowdown in U.S. GDP growth compared to other European countries.** While it is difficult to determine causality, there is no question that the German and U.S. business cycles are highly correlated (Figure I-6). Using a simple structural model, IMF (2002a) found that a 3½ percentage point slowdown in U.S. growth resulted in an investment-led 1½ percentage point reduction in German growth, compared with less than 1 percentage point for the euro area.

Figure I-6. Germany and the United States: GDP Growth, 1960-2002



Source: European Commission; and IMF staff calculations.

15. **Recent financial developments may provide an additional explanation for the weakness in investment.** There is a burgeoning literature that emphasizes the role of the financial system in generating or propagating macroeconomic shocks.⁴ The basic premise of this literature is that external sources of credit are not perfect substitutes for internal sources—such as profits or liquid assets—and that disruptions in the availability of external credit have important real effects.⁵ There are two channels through which changes in economic and financial conditions can affect the level of credit and, consequently, the pace of economic activity. First, adverse economic and financial shocks can weaken firms' balance sheets, thereby leading firms to reduce their demand for investment goods and credit beyond the amount accounted for by traditional factors (the pace of economic activity and the cost of capital). Second, adverse shocks may also lead to either bank balance-sheet problems or to banks reassessing the riskiness of bank lending, causing banks to restrict their availability of credit.⁶

16. **While theory does not provide a good guide to measuring balance sheet stress, most indicators for German non-financial and financial corporations suggest a degree of concern** (Figure I-7). Leverage ratios rose sharply in the late 1990s but are not as high as those recorded in the 1980s. Debt relative to internal funds has also risen sharply to record levels. However, interest rates are relatively low, and businesses have been providing generous dividend payouts, suggesting less concern for paying down debt and little demand for new investment projects. There is more concern about bank balance sheets and profitability, with banks facing deteriorating asset quality, a need for large loan-loss provisions, and large losses on foreign operations at major commercial banks.

Econometric evidence

17. **Econometric studies conclude that traditional accelerator models explain business investment better than the alternatives.** The empirical-based partial adjustment approach to specifying these models is:

$$\frac{I_t}{K_{t-1}} = \mu + \sum_{i=1}^n \lambda_i \Delta \log Y_{t-i} + \sum_{i=0}^n \gamma_i X_{t-i} + \sum_{i=1}^n \gamma_i \frac{I_{t-i}}{K_{t-1-i}} + \varepsilon_t$$

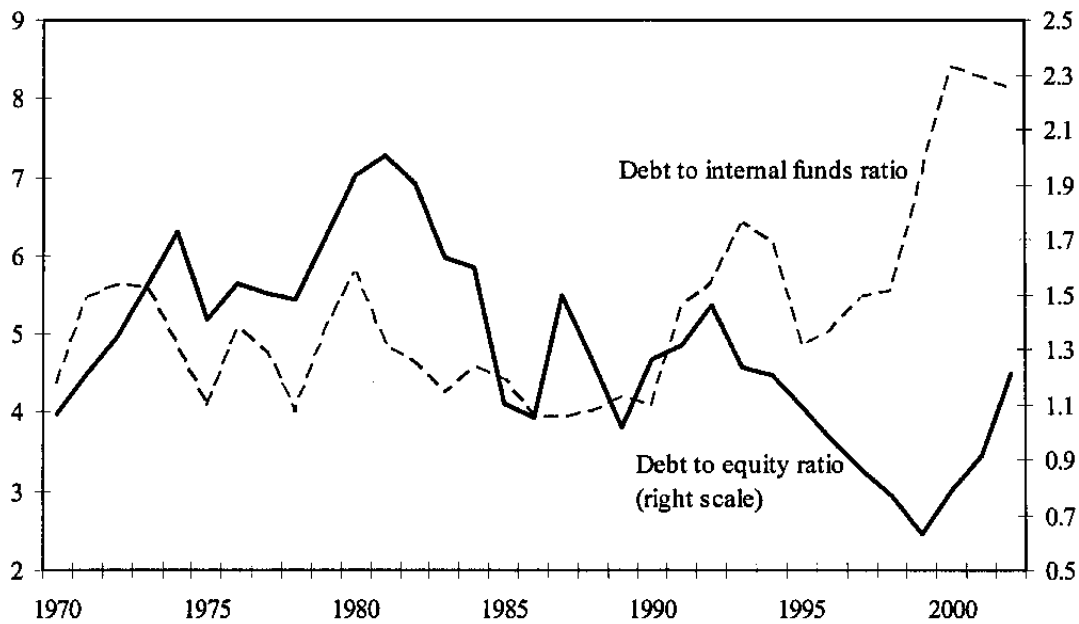
⁴ See, for example, Bernanke and Gertler (1990) and Bernanke, Gertler, and Gilchrist (1996).

⁵ Although the focus here is on business investment, the analysis also extends to household investment.

⁶ See Jaeger (2003), WEO (2003), and von Kalckreuth (2001) for recent analyses of balance sheet problems in Germany. See Bundesbank (2002) and IMF (2002a, 2002b) for analyses of German bank credit.

where I_t and K_{t-1} are business investment in year t and the business capital stock in year $t-1$, $\Delta \log Y_{t-i}$ denotes lags of real GDP growth, X_{t-i} represents a vector of exogenous factors that drive business investment, and ε_t is the forecast error for year t . As discussed earlier, based on the neoclassical growth model, X_t should contain at least the depreciation rate. In addition, traditional models also include the user cost of capital to capture cyclical movements in business investment. This section also explores the relative importance of the other explanations discussed above—recent tax reforms, U.S. GDP growth, and corporate balance sheet factors.

Figure I-7. Germany: Corporate Balance Sheet Indicators, 1970-2002



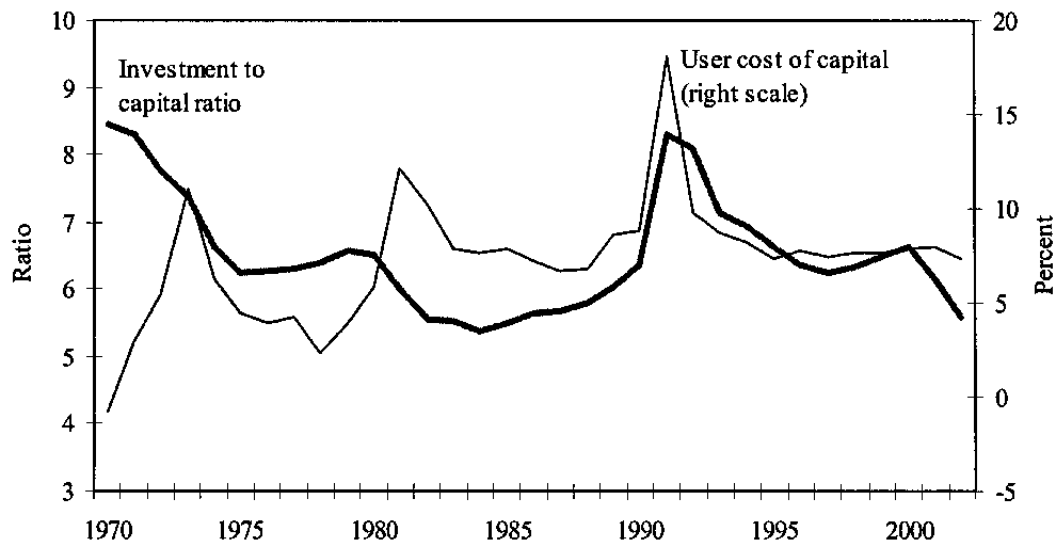
Source: Jaeger (2002).

18. **While the accelerator model performs quite well in practice, it is not without problems.** Contrary to theory, studies find that the investment is not very responsive to factor prices. For example, Chirinko (1993) concludes that “on balance, the response of investment to prices tends to be quite small and unimportant relative to quantity variables.” Moreover, these models failed to predict much of the investment boom that was seen in many countries in the late 1990s—see, for example, Tevlin and Whelan (2000) for an analysis of the U.S. experience. Indeed, for Germany, the user cost of capital—measured as the sum of the real interest rate, the depreciation rate of capital, and price inflation rate of investment goods

relative to GDP—tends to be positively correlated (rather than negatively correlated) with movements in business investment (Figure I-8).⁷

19. **Regression analysis confirms that, in Germany's case, the traditional accelerator model explains a sizeable fraction of business investment spending** (Table I-6, regression 1). The coefficients have the expected signs and most are statistically different from zero. The estimated coefficients on the depreciation rate indicate that this variable does not have a long-term effect on the investment ratio, perhaps reflecting little variation over the sample period. As in other countries, the estimated coefficient for the user cost of capital is (at best) statistically different from zero at less than conventional confidence levels.

Figure I-8. Germany: Business Investment to Capital Ratio and User Cost of Capital, 1970-2002



Source: European Commission and IMF staff calculations.

⁷ This likely reflects the endogeneity of real interest rates and the price of investment goods, which are assumed to be exogenous in the traditional accelerator model.

Table I-6. Germany: Econometric Models of Business Investment, 1970-2002
(Dependent variable is the investment to capital ratio)

Independent Variable:	(1)	(2)	(3)	(4)	(5)
Constant	2.25 (3.3)	1.72 (2.6)	2.23 (3.2)	3.79 (3.6)	1.47 (2.3)
Investment ratio $t-1$	0.63 (9.1)	0.61 (9.5)	0.64 (8.6)	0.64 (9.7)	0.71 (11.0)
GDP growth $t-1$	0.08 (2.4)	0.08 (2.8)	0.07 (1.5)	0.05 (1.5)	0.07 (2.5)
Depreciation	5.81 (4.4)	6.39 (5.1)	6.13 (3.9)	5.29 (4.1)	5.35 (4.6)
Depreciation $t-1$	-5.83 (-4.4)	-6.19 (-5.0)	-6.17 (-3.9)	-5.61 (-4.4)	-5.04 (-4.3)
User cost of capital	-0.04 (-1.4)	-0.05 (-2.0)	-0.04 (-1.4)	-0.02 (-0.7)	-0.03 (-1.3)
Tax reform dummy		-0.48 (-2.4)			
US GDP growth $t-1$			0.01 (0.4)		
Debt-to-equity $t-1$				-0.42 (-1.9)	
Debt-to-funds $t-1$					-0.18 (-3.2)
Adjusted R ²	0.86	0.88	0.86	0.88	0.90
Degrees of freedom	26	25	25	25	25

Note: *t* statistics are shown in parentheses.

20. **There is little evidence that recent tax reforms or weak U.S. GDP growth have had an additional impact on German business investment spending.** Adding a dummy for corporate tax reform (equal to 1 for 2000-2) improves the model fit (regression 2).⁸ However, the estimated coefficient is negative, a result that is inconsistent with the tax revenue data and the expectation that tax reform would have provided a temporary boost to investment, as discussed above. The estimated coefficient is more likely reflecting other factors; for example, the timing of the reform coincides with the collapse of the equity price bubble and its aftermath. The impact of U.S. GDP growth is found to be insignificant—beyond the impact that is already measured by changes in German GDP growth (regression 3).

21. **Simple regressions do, however, find some systematic role for balance sheet factors in explaining German investment behavior.** The regressions—similar to those

⁸ The timing of the dummy variable attempts to take into account the announcement effect (in 2000) of tax reform, which came into effect at the beginning of 2001.

estimated in Jaeger (2003)—indicate that the debt-to-equity ratio has a marginal influence on business investment behavior (regression 4), while the debt-to-internal funds ratio has a negative and significant effect on the investment-to-capital ratio (regression 5). The latter model also has marginally greater explanatory power than the traditional accelerator model.

22. **While the balance sheet indicators are important in explaining the recent investment slowdown, the slowdown in GDP growth remains the dominant explanation for the slowdown** (Figure I-9). The traditional accelerator model—shown as the thin solid line—explains about half of the recent investment decline. The debt-to-equity ratio adds very little explanation in the model to the dynamic movements of business investment. But adding the debt-to-funds ratio improves the fit somewhat, especially for the decline that was observed in 2002. On the other hand, the hybrid model is not able to explain the surge in investment in 2000 or the decline in 2001 as well as the traditional model. In other words, the slowdown in GDP growth stands as the dominant explanation for the decline that has been observed since 2000. Nevertheless, these results from the financial accelerator model must be interpreted very cautiously, since this balance sheet indicator has moved out of historical ranges, suggesting possible overfitting of the regression model.

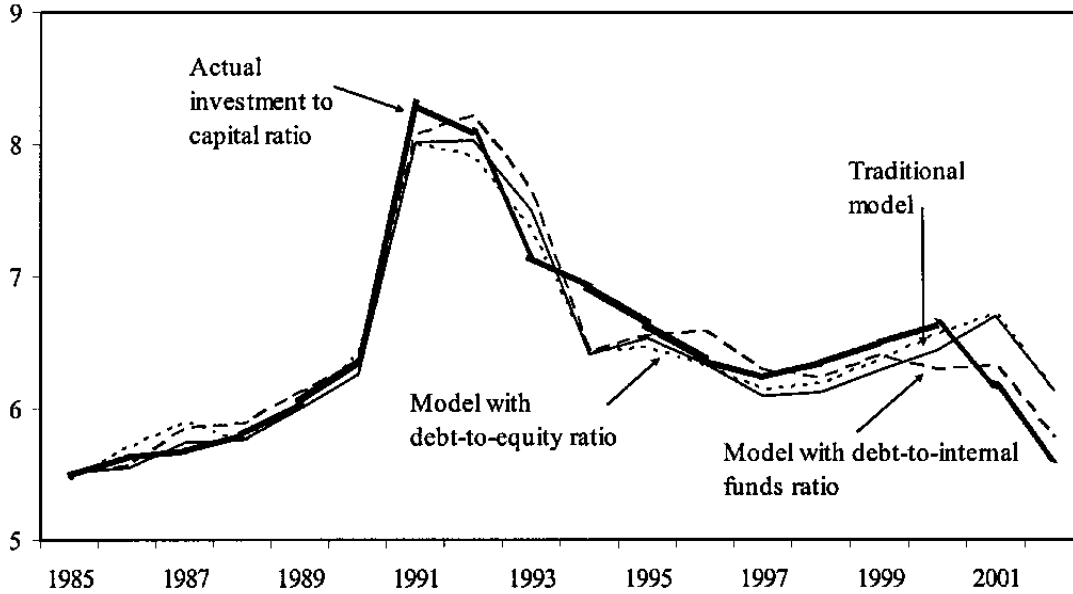
23. **Balance sheet correction could potentially dampen the pace of recovery in investment.** Assuming that real GDP growth is flat in 2003 and picks up to 1½ percent in 2004 (in line with the WEO forecast), the traditional model indicates a very modest pick up in business investment over the next couple of years (Figure I-10). The financial accelerator models, which assume that the pace of balance sheet consolidation is similar to that in recent years, forecasts a slightly less optimistic pace of investment activity. In all cases, however, the level of investment activity in 2005 is forecast to be well below historical levels, consistent with the predicted optimal investment ratio discussed earlier.

D. Conclusions

24. **Based on theoretical relationships, the recent weakness in business investment has a pronounced structural component.** The neoclassical growth model indicates that current levels of business spending are not out of line with economic fundamentals. Indeed, the more important question seems to be what factors caused a slowdown in total factor productivity over the past several years.

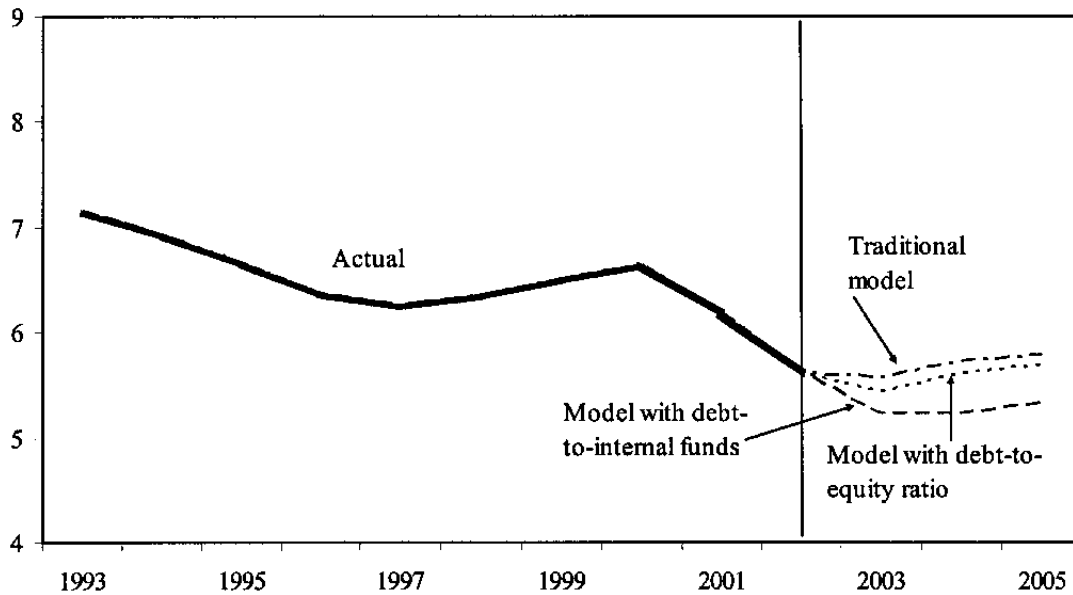
25. **On top of the downward trend, changes in GDP growth explain much of the cyclical movements in business investment.** There is no evidence that either recent tax reforms or weak U.S. growth has had a significant independent impact on investment other than through their effects on German GDP growth itself. While balance sheet indicators—especially the ratio of internal funds to debt—provides additional explanatory power, the slowdown in GDP growth remains the primary explanation for the investment collapse. Nevertheless, if the debt-to-internal funds ratio remains high, balance sheet factors could be a significant restraining factor on investment as economic activity picks up.

Figure I-9. Germany: Investment to Capital Ratio (Actual and Predicted), 1985-2002



Source: European Commission; and IMF staff calculations.

Figure I-10. Germany: Investment to Capital Ratio (Actual and Forecasted), 1993-2005



Source: European Commission; and IMF staff calculations.

References

- Blanchard, Olivier, 1993, "Consumption and the Recession of 1990-91", *American Journal of Economics*, Vol. 83(No. 2), pp. 270-74.
- Bundesbank, 2002, "The Development of Bank Lending to the Private Sector," *Deutsche Bundesbank Monthly Report* (October), pp. 31-46.
- Bernanke, Ben, and Mark Gertler, 1990, "Financial Fragility and Economic Performance," *Quarterly Journal of Economics*, Vol. 105, pp. 87-114.
- Bernanke, Ben, Mark Gertler, and Simon Gilchrist, 1990, "The Financial Accelerator and the Flight to Quality," *Review of Economics and Statistics*, Vol. 78, pp. 1-15.
- Chirinko, Robert S., 1993, "Business Fixed Investment Spending: Modeling Strategies, Empirical Results, and Policy Implications," *Journal of Economic Literature*, Vol. XXXI (December), pp. 1875-1911.
- International Monetary Fund, 2003, "Corporate Fragility and Investment: What's Different About the Recent Bubble?" *World Economic Outlook*, (April) pp. 76-88.
- International Monetary Fund, 2002a, Germany—Staff Report, IMF, Washington DC.
- International Monetary Fund, 2002b, Germany—Selected Issues, IMF, Washington DC.
- International Monetary Fund, 2000, Germany—Selected Issues—Tax Reform, IMF, Washington DC.
- Jaeger, Albert, 2003, "Corporate Balance Sheet Restructuring and Investment in the Euro Area," IMF Working Paper WP/03/117.
- Jorgenson, Dale W., 1971, "Econometric Studies of Investment Behavior: A Survey," *Journal of Economic Literature*, Vol. IX (December), pp. 1111-47.
- Mendoza, Enrique, Assaf Razin, and Linda J. Tesar, 1994, "Effective Tax Rates in Macroeconomics: Cross-country Estimates of Tax Rates on Factor Incomes and Consumption," *Journal of Monetary Economics*, Vol. 34, pp. 297-323.
- von Kalckreuth, Ulf, 2001, "Monetary Transmission in Germany: New Perspectives on Financial Constraints and Investment Spending," Economic Research Centre of the Deutsche Bundesbank, Discussion Paper 19/01.
- Tevlin, Stacey, and Karl Whelan, 2000, "Explaining the Investment Boom of the 1990s," Board of Governors of the Federal Reserve System Working Paper.

II. BANKING ON THREE PILLARS IN EUROPE: A CROSS-COUNTRY PERSPECTIVE ON GERMANY⁹

A. Introduction

26. **Germany's banking system is composed of three pillars and is characterized by a high degree of public ownership.** The three pillars—commercial banks, cooperatives, and public sector banks—differ with respect to ownership and objectives. The public sector banks—most of which are effectively owned by state and local governments rather than by the federal government—operate commercially but also have a public mandate and currently benefit from a government guarantee. The cooperatives serve the interest of their owners who are also among their depositors and borrowers. Even among the commercial banks, several of the smaller institutions are closely held.

27. **Banking systems in several other European countries have a similar three-pillar structure but have recently introduced more flexibility for cross-pillar restructuring.** Those countries formerly had banking systems similar to that of Germany (often indeed modeled on the German system), which were transformed during the 1980s and 1990s to introduce more varied forms of ownership, reduce the role of the state, increase market incentives, and facilitate on-going restructuring and reorientation. That experience and the recent performance of their banking systems, in economies that in many ways parallel the German economy, is helpful for identifying some of the factors affecting German banks, and suggesting approaches to reform.

28. **This paper takes a cross-country perspective on the performance of German banks and some of the challenges that lie ahead.** The objectives are twofold: (i) to compare the performance of German banks with those in the other countries; and (ii) to reflect on the role of the public sector in the German banking system and how the structure can be adapted to changed circumstances. Comparison is made mainly with the banking systems of France, Italy, Spain, and the United Kingdom, with some information also on developments in Austria and Sweden.

29. **The cross-country comparison suggests that banks in Germany tend to be less profitable—even in comparisons across similar pillars—than in the comparator countries. Further, profitability has fallen sharply over the past five years, unlike in the other countries reviewed.** The paper seeks to establish whether German banks post lower profits because of cost inefficiencies or low revenue. In a first step, the comparison focuses on cost and revenue ratios. In a second step, estimates are formed of the deviations relative to “best-practices” cost and revenue functions that are fitted to microeconomic data on banks operating in the countries reviewed. The findings indicate that banks in Germany are less

⁹ Prepared by Allan Brunner (EU1), Jörg Decressin (EU1), Daniel Hardy (MFD) and Beata Kudela (EU1)

profitable than banks in the other countries mainly because of lower revenue mobilization, and in particular their inability to increase noninterest revenue to compensate for narrowing spreads. The absence of profit-maximization as the primary motive for large segments of the banking system may explain part of the gap.

30. Further pressure on bank profitability in Germany is likely because of the termination of government guarantees for public sector banks starting in mid-2005. This change is likely to affect primarily the Landesbanken, which are mainly engaged in wholesale intermediation with narrow margins. The results suggest that the phase-out of state guarantees could put the profit margin of the Landesbanken sector at risk, absent changes to their current business model. This would also have repercussions for the savings banks. The various Landesbanken and their associated Sparkassen are already responding with the development of different business models. These new strategies, however, do not involve the introduction of private capital because of legal and other obstacles, thus constraining options for innovative restructuring and the strengthening of market incentives.

31. The paper also reviews the various arguments for and against public involvement in banking in Germany. It analyzes two specific questions: first, does efficiency differ markedly between publicly and privately-owned banks? Second, are market failures in Germany sufficiently extensive that their correction warrants public ownership of almost half of the banking system? The paper comes up with largely negative answers to both questions: there seem to be no major differences between the efficiency of public and private sector banks; nor are there major market failures. It concludes with a review of the efforts of the other countries to reform their public sector banks, observing that a greater role was afforded to the private sector during the 1990s and that this went along with improving financial strength.

32. The paper is structured as follows: Section B describes Germany's three pillar banking system; Section C compares the structure and performance of Germany's banking system with those of France, Italy, Spain, and the United Kingdom. Section D estimates the effect of the phase out of guarantees on Germany's public sector banks. Section E discusses various avenues for structural reforms of Germany's public sector banks and reflects on the case for public sector ownership, drawing also on the experience in the other countries reviewed. Section F concludes.

B. What Does the Three Pillar System Look Like?

33. Germany's banking sector comprises a large number of credit institutions—totaling 2,696 in 2001—and is structured along three pillars (Table II-1): public sector banks, cooperatives (“Genossenschaftsbanken”), and commercial banks. In addition, mortgage banks and building and loan societies (“Realkreditinstitute” and “Bausparkassen”) operate in all three sectors, providing medium- and long-term credit secured against domestic

real estate.¹⁰ The public sector pillar comprises regional and national development banks, savings banks (“Sparkassen”), and their head institutions (“Landesbanken”). These institutions are governed by public law. In addition, the Postbank—which ranks among the country’s 12 largest banks with a market share of roughly 2 percent—is owned by Germany’s postal service, a joint stock corporation under private law that, in turn, is held by the Federal Republic of Germany.

34. The three pillars differ considerably with respect to branch networks and market shares (Table II-2). The public sector banks hold roughly half of the banking market in Germany, or somewhat over one third upon excluding the development banks. Over time, the commercial banks have gained market share. Foreign-owned banks and their branches account for roughly one third of the market (by assets) that is not in the hands of the public sector or cooperatives. The savings and cooperative banks have the densest retail branch networks (16,491 and 14,584 branches, respectively), followed by Postbank (12,792 branches). While the cooperatives are, in a sense, the smallest true credit institutions, the Postbank may have the largest potential to reach clients, as it conducts business through postal offices.

The public sector banks

35. The public banking pillar comprises the Sparkassen and Landesbanken on the one hand, and the development banks on the other (Box II-1). The Sparkassen are organized in Länder associations. Each Land among the old Länder used to have its own Landesbank, which can be viewed as a head institution of the Sparkassen in the respective Land.¹¹ In the new Länder, only Sachsen has its own Landesbank. The supervisory councils (“Verwaltungsrat”) of Sparkassen and Landesbanken, which appoint management (“Vorstand”), are staffed with representatives from local politics, business, employees, and the general public.

36. The mandate of the Sparkassen and Landesbanken is to foster the economic development of their regions by following viable business plans. As part of this mandate, the Sparkassen and Landesbanken are expected to subsidize local public goods, such as recreational facilities, art festivals, etc. While the Sparkassen and Landesbanken need not maximize profits, retained earnings are their main source for funding new business, as capital injections burden local government budgets. Landesbanken can operate across the entire

¹⁰ For further details, see Kodres (1999). Mortgage banks and building and loan societies are typically affiliated with regular banks, conducting the real estate-related business. Accordingly, they are not universal banks and thus are not reviewed further in this paper.

¹¹ The Land Rheinland-Pfalz no longer holds any participating interest in the Landesbank Rheinland-Pfalz. In addition, the Länder Hamburg and Schleswig Holstein have recently merged their Landesbanken into HSH Nordbank.

Table II-1. Germany: Number of Banks and Branches, 2001

	Number	Branches	Branches abroad	Subsidiaries abroad	Employees	
					Number	Percent of total
Commercial banks	304	18368	214	349	...	...
Excluding Postbank	303	5576	208	345	215,300	29.3
Big Four	4	2369	153	299	...	...
Other, domestic	220	3194	55	46	...	...
Branches of foreign banks	79	13	0	0	...	...
Postbank	1	12792	6	4	...	...
Landesbanken	13	603	50	47	42,800	5.8
Sparkassen	534	16491	3	3	282,150	38.5
Cooperatives (central institutions)	2	18	9	21	6,950	0.9
Cooperatives	1621	14584	8	1	169,900	23.2
Mortgage banks	28	136	16	5	...	...
Building societies	29	3694	14	3	...	...
Of which: public	11	821	4	0	...	...
Total	2696	53931	329	434	...	...
Excluding Postbank	2695	41139	323	430	733,800	100.0

Sources: Bundesbank, Bankenstatistik, January 2003; and Monthly Report, September 2002.

Table II-2. Germany: Business Volume of Banks, 1970-2001 1/

	1970	1980	1990	1995	2000	2001
Private-sector (noncooperative) banks	31.3	32.1	34.8	35.2	42.9	43.1
Commercial banks	24.8	23.6	25	24.2	28.2	28.4
Private sector mortgage banks	6.5	8.5	9.8	11	14.7	14.7
Cooperative banks	11.5	15.2	16.2	15.2	12.6	12.2
Central institutions	3.8	4.3	4.1	3.5	3.8	3.4
Credit cooperatives	7.7	10.9	12.1	11.7	8.8	8.8
Public sector banks	45.8	43.5	40.6	40.1	36.9	36.9
Savings banks	23	22.1	21	20.1	15.8	15.7
Landesbanken/Girozentralen 2/	15.3	16.3	16.3	18.2	20.2	20.2
Public sector mortgage banks 2/	7.5	5.1	3.3	1.8	0.9	1
Special public sector credit institutions	8.4	6.4	6.9	9.5	7.6	7.8
All public sector credit institutions	54.2	49.9	47.5	49.6	44.5	44.7

Source: VOB, Annual Report 2001/02, page 39.

1/ From 1991, including new Laender; until 1991, excluding Postbank (share in 1990: 1.5 percent), which was included in the category of special public sector credit institutions in 1992.

2/ Between 1995-2000, the causes of the fall in the share of mortgage banks are mergers of such banks with Landesbanken.

country but the Sparkassen are not allowed to open branches in each other's business regions (regional principle) and thus competition between the Sparkassen is limited. Only the Landesbanken engage in international business; for some Landesbanken, investment banking overseas is a major component of their activities.

Box II-1 Germany: The Savings Bank Pillar

The Landesbanken, Sparkassen, and Landesbausparkassen can be viewed as one group that operates along a Länder and regional principle.

The Landesbanken—which date back to the early 20th century—are typically owned by Länder governments and regional Sparkassen associations. The 12 Landesbanken (LB) and DGZ/DEKA bank are active in what could be termed increasing returns to scale (IRS) activities:¹² they act as the central banks for the Sparkassen, particularly those that do not tap the interbank market; perform the role of short-term debtors and long-term creditors vis-à-vis the Sparkassen, thereby relieving them of maturity-mismatch risk; offer back-office operations and settlement services (inter alia, through 6 transactions banks), and asset management services—through some 7 investment management companies—to their Sparkassen; and engage in wholesale lending and deposit taking. Only a few have a foothold in the retail market (LB Baden-Württemberg; LB Berlin; and Nord LB). Landesbanken funding comprises deposits by the Sparkassen, loans from the interbank market, and medium-and long-term bonds that, thanks to the public sector guarantee, usually have an AAA rating. Nonetheless, their cost of funding is higher than that of other banks because they do not have a retail base.

The Sparkassen system originated with the first public savings bank in Hamburg in 1778, formed to intermediate capital between economic agents that were too poor to have access to private banks. Sparkassen belong to municipalities, except for 7 institutions that are owned by foundations. Accordingly, they usually do not compete with each other. They are permitted to undertake the full range of universal banking activities but the majority concentrates on retail business. The Sparkassen are governed by Länder-specific laws, the “Sparkassengesetze,” and are subject to the supervision by the Länder Ministries of Finance/Economy.

Some 11 Länder building societies (“Landesbausparkassen”), 21 public insurance companies, and various leasing and factoring companies complement the services offered by the Landesbanken and Sparkassen.

37. Any Sparkasse or Landesbank is ultimately backed by a joint liability scheme. The scheme comprises the full set of regional support funds of the Sparkassen, which are called on first in case of difficulties, and the security reserve of the Landesbanken. It backs the institutions rather than just their deposits. The associations of the Sparkassen and Landesbanken also supervise their members to reduce moral hazard. Nonetheless, their

¹² DGZ/DEKA Bank is henceforth simply included under the Landesbanken; it performs a role that is similar to that of a Landesbank but is not associated with a specific Land.

liabilities and continued operation are guaranteed by the state (“Gewährträgerhaftung” and “Anstaltslast”).¹³ The guarantees ensure that the state ultimately bears the costs of banking in the public interest. In practice, contributions to recapitalize a Sparkasse typically come both from the relevant regional association and local government, usually in a ratio of about two to one.

38. **The development banks include both national and regional institutions.** The most prominent national institutions comprise the Kreditanstalt für Wiederaufbau (KfW) and the Deutsche Ausgleichsbank (DA), which are being merged into a single bank. They do not engage in deposit taking from retail clients. KfW’s original mandate was to help fund the reconstruction of the German economy after WWII, including through the distribution of Marshall plan funds. KfW now administers various government programs, including part of Germany’s Official Development Assistance (ODA) program, and offers some services (e.g., securitization) to other banks. A number of regional development banks (“Investitions- und Strukturbanken”) perform development tasks at the Länder level. In the subsequent analysis, the development banks are not discussed because of their specialized role.

The cooperative sector

39. **The cooperatives also form a two-tier pillar of the banking system, but, unlike the public sector banks, their head tier is no longer broken up across Länder and they do not benefit from public sector guarantees (Box II-2).** They usually operate on a regional principle but are not forced to do so: they are the main (if not only) competitors of the Sparkassen in many small towns and rural areas. The head institutions perform similar roles to those of the Landesbanken, although their scope for business is more contained, particularly with respect to wholesale banking, as without public sector guarantees their comparative advantage in this domain is relatively limited. Though each cooperative has its own supervisory and executive boards, to a large extent they behave as one brand and thus maintain an institution (rather than deposit) insurance. While profitability is not their main objective, retained earnings and equity contributions from new members are their main sources of funding new business.¹⁴ They are owned by their membership; usually, each member can own only a limited number of shares.

¹³ The “Anstaltslast” (maintenance obligation) and “Gewährträgerhaftung” (liability obligation) ensure that public sector banks can meet their obligations at any time. In the event of any default, the state is obligated to step in and settle the claims of any and all creditors.

¹⁴ Part of their economic profits may be distributed to members in the form of lower fees and higher deposit interest rates, thereby avoiding the double taxation of dividends.

Box II-2. Germany: The Cooperatives Pillar

The cooperative banks (“Volksbanken”, “Raiffeisenbanken”, “Spar- und Dahrlehenskassen”) date back to the 19th century, when they were founded as self-help organization for craftsmen, workers and farmers. Today, slightly under 1,500 cooperative banks are in operation. Most cooperative banks concentrate (voluntarily) on their respective local markets and do not compete with one another, but some used to focus on certain groups of the population (such as pharmacists or railway workers) and are now offering services to everyone across the country.

Despite the local emphasis, the cooperative pillar has gone further than others in integrating wholesale, back-office, and nonbank financial operations. Following several mergers, only one major and one regional head institutions are left, and there is just one transactions bank, one building society, one insurance company, one investment management company, and three mortgage banks. The cooperative sector has long engaged in extensive cross-selling, for example, by offering mortgages and insurance through the local cooperative banks. The cooperative sector also works on a collective basis on such projects as the introduction of internal ratings models and improved risk control systems. The sector as a whole has set out a strategy for its further development, including the reduction through mergers in the number of cooperative banks to about 800 in the next several years.

The cooperative banks are owned by their 15 million members, who are also their depositors. Each member can hold at most a small number of nonmarketable shares, and may also be required to pledge a limited amount of callable capital; most of the capital and reserves of cooperative banks represents accumulated retained profits. A bank’s members (or their elected representatives) vote on the selection of the supervisory board and major elements of the bank’s strategy. This arrangement has been criticized for failing to provide sufficient discipline over management (Bonus and Schmidt, 1990): the diffuse members lack expertise and strong incentives to monitor management performance closely. Because share ownership is limited, it is impossible for an outside group to build up a significant shareholding in a poorly-run institution and mount a take-over attempt. In the case of Germany, these drawbacks are counterbalanced by the role of the cooperative bank association, which performs supervision and can effectively pressure weak management to accept a take-over. Furthermore, if a cooperative’s members are dissatisfied, they could opt to de-mutualize: experience with the building societies in the United Kingdom suggests that de-mutualization is attractive where an institution has over generations built up excessive capital that can be disbursed to current owners, or when the existing institution is inefficient, for example, because it cannot exploit all economies of scale or because it is undercapitalized.

Organization on a cooperative basis and the concentration on a specific local clientele has advantages and disadvantages. On the one hand, a local cooperative bank may have an informational advantage in evaluating the creditworthiness of its equally local borrowers, and the fact that depositors and borrowers are also mostly owners can reduce moral hazard. On the other hand, the more local the bank, the less diversified will be its loan portfolio; major local borrowers may be able to exercise undue influence on the bank’s decision-making; and it may be difficult for a cooperative bank quickly to raise large amounts of Tier I capital, if necessary. Current initiatives being implemented by the German cooperative banks aim at reducing disadvantages of their organization structure. For example, greater use of securitization and credit derivatives may improve portfolio diversification, while consolidation could yield greater economies of scale.

The commercial banks

40. **The commercial banks comprise the “big four” banks—which account for roughly two thirds of that sector’s business—the Postbank, foreign banks, and numerous smaller banks.**¹⁵ Like the cooperative banks, they do not benefit from a public sector guarantee, and thus are at a disadvantage relative to the Landesbanken in tapping capital markets. Also, contrary to the public sector banks and the cooperatives, the commercial banks do not run an institution protection scheme. Instead, they run a generous voluntary deposit protection scheme, which is administered by the commercial bankers association to enable competition with public banks/cooperatives in deposit taking. Commercial banks (including those that do not elect to be members of the voluntary deposit guarantee scheme) have to participate in the less generous statutory deposit protection scheme.

Structural change and competition

41. **Consolidation across pillars is more difficult than consolidation within pillars.** Sparkassen and Landesbanken in each land are each governed by a special Länder-specific law, and thus cannot be taken over by an institution of another pillar, unless their legal status is changed, a process that requires majority support in the Länder parliaments; the same holds for mergers between public sector banks of different Länder. If the laws were changed to turn Sparkassen and Landesbanken into joint stock corporations governed by private law, such as the Postbank,¹⁶ privatization is yet another step that would also require parliamentary support. With the impending abolition of state guarantees, some reforms in this direction are already underway (see below).

42. **The three pillar system also shapes the degree of competition among banks.** First, the public sector banks benefit from state guarantees. It is hard to argue that these guarantees make a major difference for attracting retail depositors, as the institutional protection and the deposit insurance offered by the other banks are generous. However, the high level of deposit protection in cooperative and commercial banks may in part be motivated by competition with the public sector, and cooperative and commercial banks must bear the costs of maintaining their generous systems. The guarantees allow the Landesbanken and, on a much smaller scale, several large Sparkassen to mobilize cheap funding in capital markets, as the bonds issued by these credit institutions usually carry a high rating thanks to the guarantees. Second, within (not across) two of the three pillars—the equivalent of almost two thirds of the banking system—there is only limited competition: public sector banks and

¹⁵ The “big four” comprise Deutsche Bank, Hypovereinsbank, Dresdner Bank, and Commerzbank.

¹⁶ For the Sparkassen, ownership could pass to foundations rather than the local government, as is the case already for seven “free” Sparkassen.

cooperatives operate generally in single regions, typically refraining from competition with institutions belonging to the same pillar. Thus, the number of banks and various concentration ratios overstate the degree of competition in the German banking market. Third, maximization of reported profits is not the paramount objective of public sector banks and cooperatives: these institutions also need to support the economic developments of, respectively, their region or their members. However, profits are their main source of new capital: unlike commercial banks, they generally cannot raise funding on the equity market.

C. Three Pillar Banking in Europe

The structure and performance of the banking system in European countries

43. **This section compares the structure and performance of the German banking system with those of selected EU countries.** These countries—France, Italy, Spain, and the United Kingdom—are comparable to Germany in terms of size, development of financial markets, macroeconomic conditions and, for the most part, broad institutional framework. Many of the European countries have diverse banking systems. For example, France has both commercial banks and a large cooperative sector, which, since 2000, has included former savings banks. Italy and Spain have all three pillars but in Italy the savings banks have largely been transformed into joint stock corporations.

44. **The key conclusions are:** (i) banks play a more important role in the German economy than in the other countries reviewed; (ii) the typical German bank is unusually small and a large part of the system is not controlled by private shareholders; (iii) according to various simple indicators, the German system appears less strong than those of the other countries reviewed, owing to lower profitability or weaker capitalization, but the dispersion of banks' performance is smaller;¹⁷ (iv) none of the pillars compare favorably in performance with their counterparts in the other countries reviewed; (v) profitability is lower largely because of weak revenues, a finding that carries through to all pillars; (vi) the weaknesses in Germany seem to be largely structural rather than cyclical; (vii) the Sparkassen and the cooperative sector post better indicators than the commercial banks in Germany but relative to the same pillars in the other countries reviewed they underperform to the same extent as the German commercial banks; (viii) considering the evidence for all the countries reviewed, no major differences in profitability are apparent between the public and private sector pillars.

Structure

45. **Banks play a more important role in the German economy than elsewhere** (Tables II-3 and II-4). Loans to nonfinancial sector residents are larger than in the other countries reviewed, with the bulk of these loans having longer maturities (in excess of

¹⁷ This is not to discount the fact that Germany in the post-war period has never had a widespread banking crisis, in contrast to some of the comparator countries.

five years). Many more banks operate in Germany than in any of the other countries reviewed. However, while employment in the banking sector (normalized by population) exceeds the levels in the other countries reviewed, it is broadly in line with banking system asset or loan levels.

Table II-3. Selected Countries: Monetary and Financial Institutions Structural Indicators, 2000-01 1/

	Year	Germany	France	Italy	Spain	United Kingdom
Assets (in percent of GDP, unless otherwise noted)	2000	300	249	153	185	356 2/
Loans	2000	222	173	108	137	292 2/
Of which: to resident MFIs	2000	55	57	16	24	
In percent of all loans	2000	25	33	15	17	
Of which: to resident non MFIs	2000	132	83	79	97	108 2/
Of which: > 5 year maturity	2000	102	47	26	57	...
Of which: to resident households	2000	70	38	23	46	76 2/
In percent of all loans	2000	31	22	21	33	26
Of which: housing loans	2000	43	21	...	29	...
In percent of loans to households	2000	62	56		63	
Assets to rest of world	2000	24	22	6	9	80
Capital and reserves						
(In percent of assets)	2000-01	4.3	7.1	7.0	8.8	7.1
(In percent of loans to non MFIs)	2000-01	9.8	21.3	13.5	16.8	23.5
Number of MFI/Percent share in assets	2000	2780 / 100%	2014 / 100%	863 / 100%	569 / 100%	395 / 100% 2/
Incorporated MFIs 3/	2000	148 / 23.5%	280 / 57.7%	240	175 / 46%	vast majority
Cooperatives	2000	1796 / 12.5%	153 / 27.7%	543	92 / 4%	...
Savings banks	2000	575 / 35.5%	0 / 0%	...	48 / 35%	...
Branches and subsidiaries	2000					
of foreign institutions	2000	146 / ...	328 / ...	58	52 / 8%	281 / 62% 2/
Other credit institutions	2000	75 / ...	593 / ...	...	1 / ...	...
Money market funds	2000	40 / ...	660 / ...	22	201 / ...	...

Sources: ECB 2002 Report on Financial Structures; and, for the UK, IMF Country Report No. 03/46 and Tables 2.1., 2.1.1., and 3.1. of Bankstats published by Bank of England.

1/ Excluding central banks.

2/ For the UK, data are for 2001.

3/ For Italy, includes former savings banks that now have turned into joint stock corporations.

Table II-4. Selected Countries: Banking System Structural Data, 2001

	Germany	France	Italy	Spain	United Kingdom
Number					
All banks	2370	1067	821	281	...
Commercial banks	199	355	...	145	42
Savings bank sector	550	...	...	...	...
Saving banks	537	...	...	47	...
Landesbanken	13	...	...	...	...
Cooperative sector	1621	151	...	89	...
Cooperatives	1619	...	...	...	...
Cooperatives heads	2	...	...	...	...
Employees					
All banks	717000	411500	344000	246000	...
Commercial banks	215000	212100	...	124000	437000
Savings bank sector	325000	...	...	106000	...
Saving banks	282000	...	...	...	...
Landesbanken	43000	...	...	...	...
Cooperative sector	177000	168600	...	16000	...
Cooperatives	170000	...	...	...	...
Cooperatives heads	7000	...	...	...	...
Assets per bank					
(In billions of euro or, for the UK, pound sterling, end-year)					
All banks	2.4	3.6	2.4	4.3	...
Commercial banks	11.7	6.2	...	4.8	42.4
Savings bank sector	4.7	...	...	9.8	...
Saving banks	1.8	...	...	...	...
Landesbanken	123.4	...	...	...	...
Cooperative sector	0.5	6.7	...	0.5	...
Cooperatives	0.3	...	...	...	...
Cooperatives heads	117.5	...	...	...	...
Assets per employee					
(In billions of euro or, for the UK, pound sterling, end-year)					
All banks	8.0	9.4	5.7	4.9	...
Commercial banks	10.9	10.3	...	5.6	4.1
Savings bank sector	8.0	...	...	4.3	...
Saving banks	3.5	...	...	...	...
Landesbanken	37.3	...	...	...	...
Cooperative sector	4.4	6.0	...	2.9	...
Cooperatives	3.2	...	...	...	...
Cooperatives heads	33.6	...	...	...	...

Source: OECD Bank Profitability, 2002. Notice that the category "All banks" comprises banks that are not listed under any of the other subcategories.

46. **Each pillar comprises many credit institutions.** In certain ways, the extent of consolidation in Germany is lower than that in the global banking industry.¹⁸ The typical bank manages a smaller amount of assets in Germany than in the other countries reviewed, with the exception of Italy. Regarding commercial banks, the share in total assets of the largest five institutions¹⁹—all of which are counted among the commercial banks—barely reaches 20 percent in Germany, relative to 40-60 percent in France, Spain, and the United Kingdom. Turning to the other pillars, the cooperatives in France and savings banks in Spain are considerably larger than the savings banks and cooperatives in Germany, even taking into account the two-tier structure of both sectors in Germany. The fragmentation of the system is also evident in the Fitch IBCA data, which cover roughly half of the commercial banks, one quarter of the cooperatives, and the bulk of the savings banks of each country:²⁰ the median asset size in the sample of German banks—across almost all pillars—is less than half as large as that in any of the other countries reviewed.

47. **The German system is less subject to the pressures of the capital market than those in the other countries reviewed.** Joint stock corporations or commercial banks—these two categories broadly overlap—account for the intermediation of about one quarter of banking system assets in Germany. In the other countries, they account for close to 50 percent or considerably more (Table II-3).

Profitability

48. **The profitability of the German banking system is relatively low and has trended downwards over recent years, unlike in the other countries reviewed** (Table II-5, Figures II-1 to II-2). The OECD data suggest that Germany's banking system pre-tax ROA reached about ¼ percent in 2000-01, as in data from national sources—or less than one third of the level elsewhere—having declined noticeably in the 1990s.²¹ By contrast, the other countries reviewed avoided the downward trend, despite integrating financial markets. Some even sharply recovered from a previous downward trend. A broadly similar

¹⁸ For a review of global developments, see Baliño and Ubide (2000); for developments in the euro area, see Belaish and others (2001).

¹⁹ These include the “big four” and Postbank.

²⁰ The Fitch IBCA database still shows separately the savings banks in France, although these have formally been turned into cooperatives in 2000. Also, it shows savings banks in Italy that have been transformed into joint stock corporations, unlike the savings banks in Germany and Spain. For further details on reforms see below.

²¹ See Appendix I for details on the data.

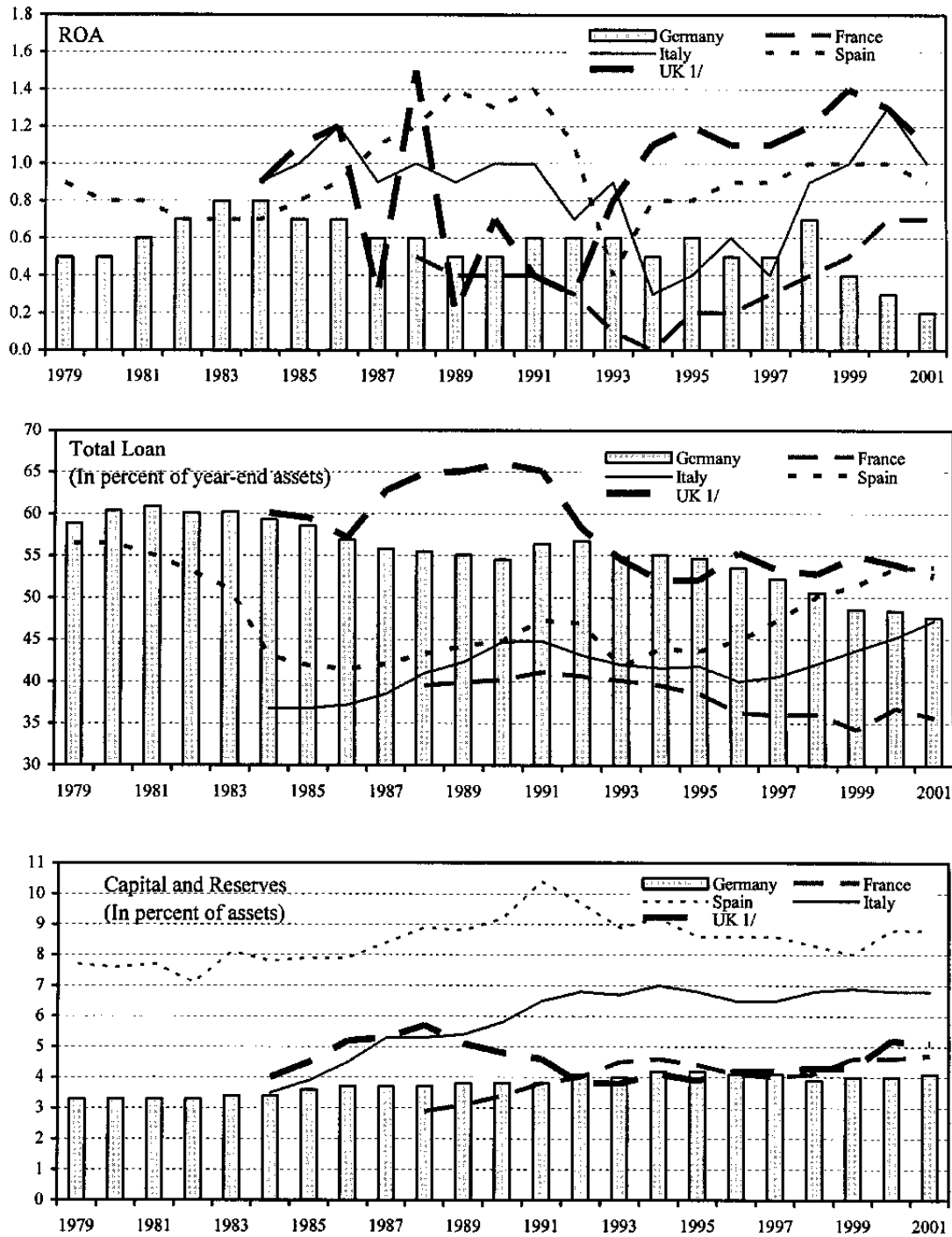
Table II-5. Selected Countries: Bank Performance Indicators, 2000-01
(In percent of average balance sheet totals)

	Germany		France		Italy		Spain		United Kingdom		1/
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	
All banks											
Net interest margin	1.3	1.3	1.0	1.0	2.4	2.6	2.2	2.5	...	...
Other operating income	0.7	0.7	1.5	1.7	1.3	1.1	1.2	0.9	...	...
Gross income	2.0	2.0	2.5	2.6	3.7	3.7	3.4	3.4	...	...
Operating expenses	1.4	1.4	1.7	1.6	2.1	2.0	2.1	1.9	...	...
Net income	0.6	0.6	0.9	1.0	1.6	1.7	1.3	1.5	...	...
Profit before tax	0.3	0.2	0.7	0.7	1.3	1.0	1.0	0.9	...	...
Loans	48.4	47.6	36.8	35.7	45.2	47.2	53.4	53.6	...	...
Capital and reserves	4.0	4.1	4.6	4.8	6.8	6.8	8.8	8.8	...	...
Cost-income ratio	68.6	69.8	66.0	62.1	56.1	55.3	61.1	55.5	...	...
Commercial banks											
Net interest margin	1.2	1.2	0.8	0.8	...	...	1.8	2.3	2.0	1.8	
Other operating income	1.1	1.1	1.8	2.0	...	...	1.3	1.0	1.5	1.4	
Gross income	2.3	2.3	2.6	2.7	...	...	3.1	3.3	3.4	3.1	
Operating expenses	1.7	1.7	1.8	1.8	...	...	1.9	1.7	1.9	1.8	
Net income	0.6	0.6	0.9	1.0	...	...	1.2	1.6	1.5	1.3	
Profit before tax	0.3	0.2	0.7	0.7	...	...	0.9	0.8	1.3	1.1	
Loans	50.2	48.7	33.4	31.9	...	...	48.7	48.1	53.9	52.6	
Capital and reserves	4.4	4.3	3.9	3.8	...	...	9.0	9.1	5.2	5.1	
Cost-income ratio	73.4	73.9	67.3	65.1	...	...	62.0	52.0	55.7	57.3	
Saving banks											
Net interest margin	2.3	2.3	...	...	...	...	2.6	2.6	...	...
Other operating income	0.7	0.6	...	...	...	...	1.1	0.8	...	...
Gross income	3.0	2.9	...	...	...	...	3.7	3.4	...	...
Operating expenses	2.0	2.0	...	...	...	...	2.2	2.1	...	...
Net income	1.0	0.9	...	...	...	...	1.5	1.4	...	...
Profit before tax	0.6	0.4	...	...	...	...	1.0	0.9	...	...
Loans	60.7	60.3	...	...	...	...	59.3	60.6	...	...
Capital and reserves	4.2	4.3	...	...	...	...	8.2	8.1	...	...
Cost-income ratio	66.1	67.7	...	...	...	...	59.7	60.3	...	...
Cooperatives											
Net interest margin	2.5	2.4	1.3	1.4	...	...	3.4	3.4	...	...
Other operating income	0.8	0.8	1.1	1.2	...	...	0.8	0.7	...	...
Gross income	3.3	3.3	2.3	2.6	...	...	4.1	4.0	...	...
Operating expenses	2.4	2.4	1.6	1.6	...	...	2.4	2.4	...	...
Net income	0.9	0.9	0.8	1.0	...	...	1.7	1.7	...	...
Profit before tax	0.4	0.4	0.6	0.7	...	...	1.2	1.1	...	...
Loans	62.3	60.9	39.6	40.7	...	...	67.0	67.3	...	...
Capital and reserves	5.1	5.0	5.2	6.4	...	...	11.6	11.2	...	...
Cost-income ratio	72.9	72.3	67.0	60.1	...	...	58.7	59.0	...	...

Source: OECD Bank Profitability, 2002. Notice that the category "All banks" comprises banks that are not listed under any of the other subcategories.

1/ Profitability data cover only the nine major banking groups.

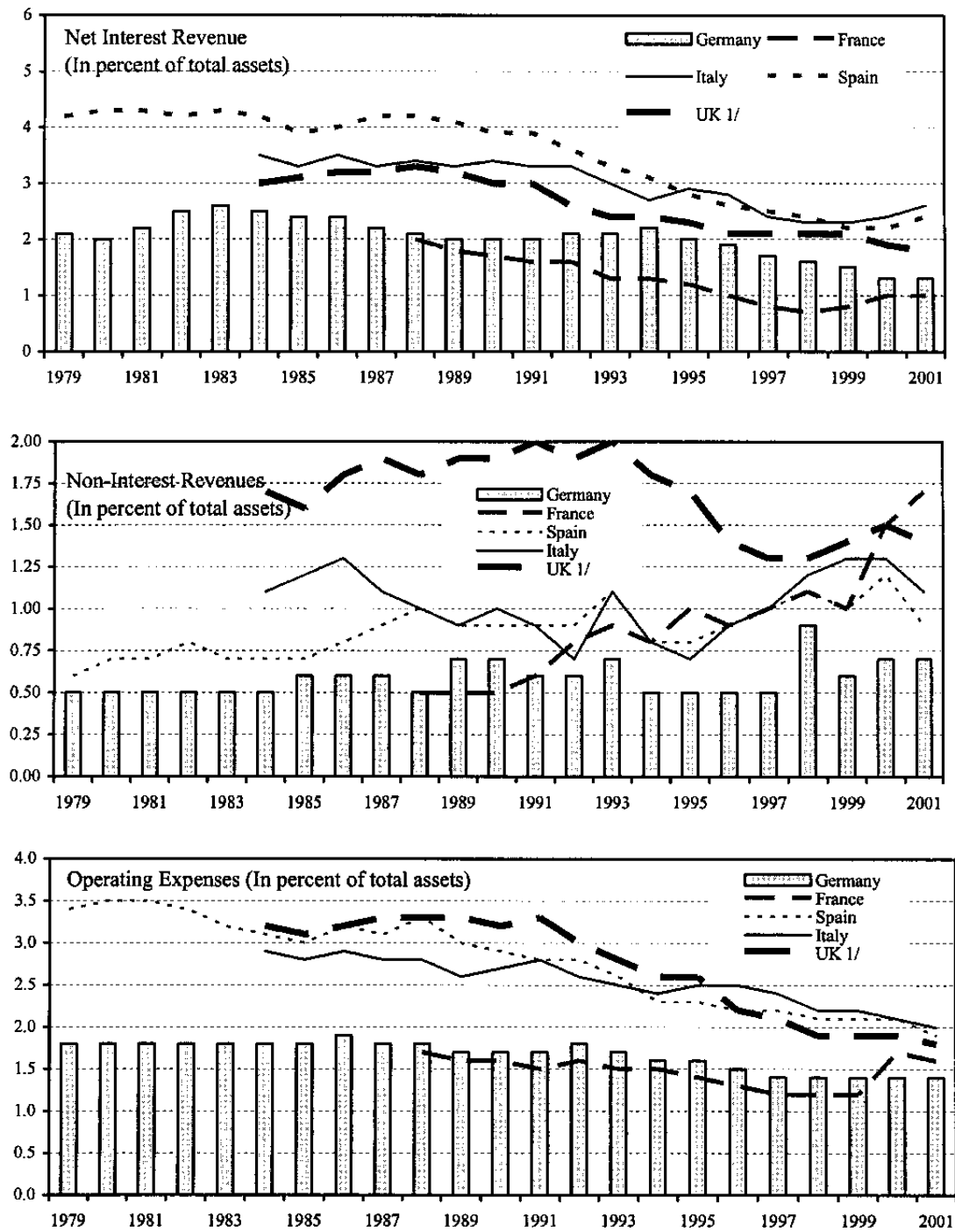
Figure II-1. Selected Countries: Banking System Developments, 1979-2001



Source: OECD, Bank Profitability, 2002.

1/ Data for United Kingdom cover only commercial banks.

Figure II-2. Selected Countries: Bank Revenues and Costs, 1979-2001



Source: OECD, Bank Profitability, 2002.

1/ Data for United Kingdom cover only commercial banks.

picture emerges from data on net operating income, although the gap is smaller. The microeconomic data from Fitch IBCA, which are harmonized to some extent, tell a similar story (Table II-6).²²

49. **All pillars of the banking system post lower profits in Germany than in the other countries reviewed and within Germany savings banks and cooperatives are currently more profitable than commercial banks (especially before tax).** Overall, the indicators make no compelling case for one type of credit institution performing better on profitability than another across all the countries reviewed. In Germany, over several years, savings banks and cooperatives have posted a higher ROA than the commercial banks (according to both the aggregate data and the microdata). However, judging by both the OECD and FitchIBCA data, the performance gaps relative to the other countries reviewed are similar for the various categories of German banks.

50. **Many privately-owned commercial banks in Germany earn low returns.** Over 20 percent of Germany's private, commercial banks in the Fitch IBCA database—more than twice the fraction recorded in the other countries—did not earn a rate of return for their owners that exceeded the rate of a (risk free) treasury bill in any of the three years 1997, 1999, and 2001 (Figure II-3). For the entire sample of German banks (which, in addition to the privately-owned commercial banks, also includes the cooperatives and savings banks) that figure is only 6 percent, similar to those for the other countries reviewed.

51. **Bank profitability in Germany appears to be largely unrelated to measures of the macroeconomic cycle, such as the output gap and interest rates.** Two measures of bank profitability—pre-tax return on assets (*ROA*) and net operating income as a share of assets (*NI*)—were decomposed into three components—cyclical, structural, and unexplained (residuals)—using regression analysis (see Appendix II). The results indicate that the measures of the economic cycle are significant explanatory variables for bank profitability in all countries but Germany. For Germany, the results thus suggest that the relatively low bank profitability observed in 2001 is difficult to explain with the then prevailing output gap and interest rates (Table II-7). In the highly simplified approach to analyzing the role of the cycle that is adopted here, bank profitability developments in Germany would thus be attributed to structural factors. For example, the average *ROA* in 2001 was 0.20, which is somewhat lower than the estimated structural *ROA* of 0.27. Notice that even after adjusting for cyclical effects, the average *ROA* in Germany was still about one fifth of those in other European countries.

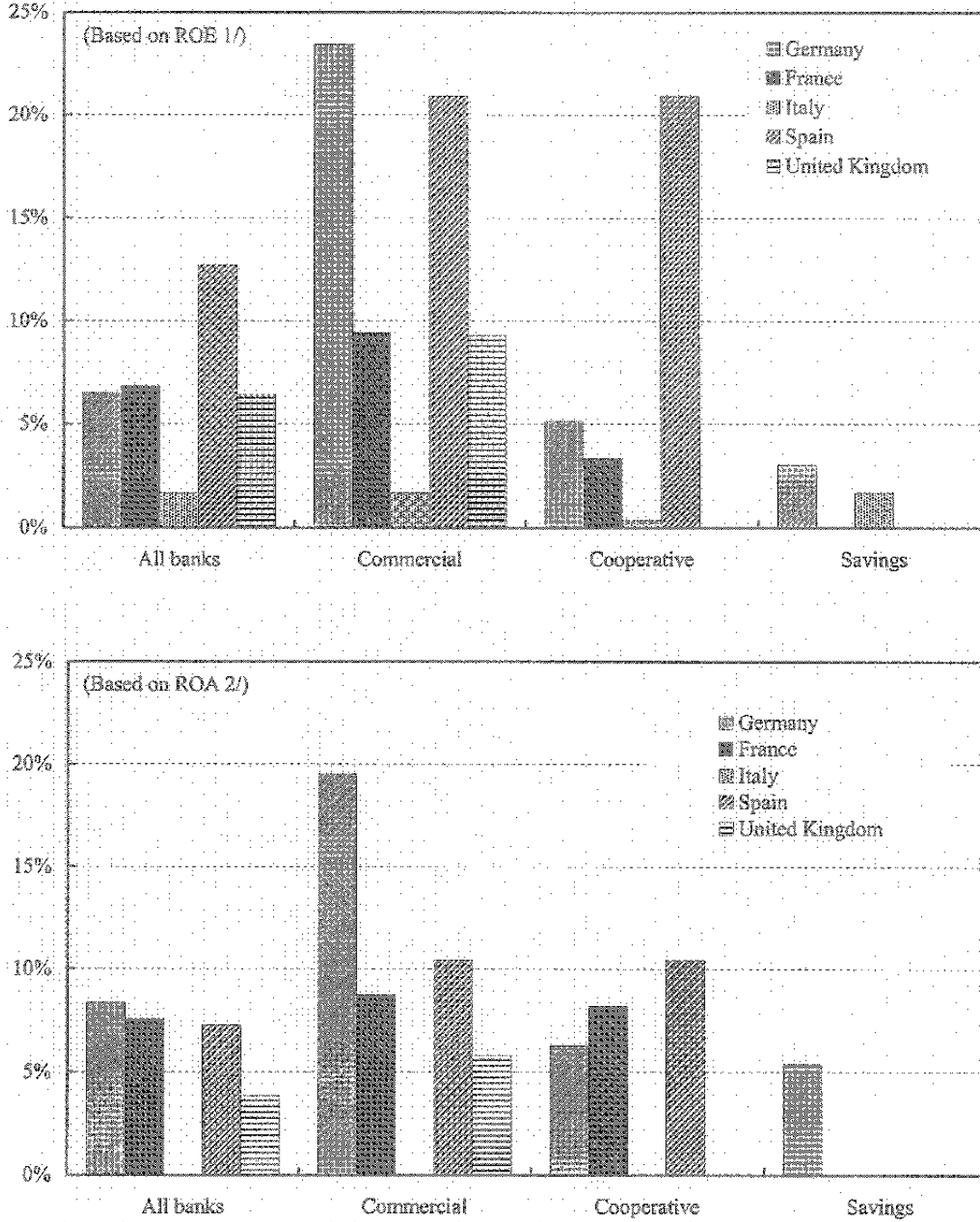
²² The conclusions based on returns on equity (ROE) are broadly similar. ROA is preferred because it is more robust. Notice that the median ROA among German banks (¼ percent) was little over one third of the level of the median ROA in the other countries reviewed in 2000-01. Part of the difference is due to the larger number of institutions in Germany and the consequent larger share of interbank claims in gross total assets. However, interbank claims are also large in France and the United Kingdom, so this aggregation bias cannot explain all the difference.

Table II-6. Selected Countries: Bank Performance Indicators, 1997-2001
(In percent of assets, unless otherwise noted)

	Germany			France			Italy			Spain			United Kingdom		
	1997	1999	2001	1997	1999	2001	1997	1999	2001	1997	1999	2001	1997	1999	2001
All Banks															
Number of observations	1279	1278	1279	251	251	250	417	417	417	110	110	110	156	157	157
ROA															
90 percentile	0.5	0.4	0.4			1.7			1.4			1.9			1.8
10 percentile	0.1	0.1	0.1			0.0			0.2			0.1			0.2
Median	0.3	0.2	0.2	0.4	0.5	0.7	0.8	0.7	0.8	0.9	0.9	0.9	0.7	0.7	0.6
Net interest revenue															
Median	2.9	2.7	2.5	2.4	2.2	2.2	3.8	3.3	3.4	3.5	3.0	2.9	2.0	1.8	1.8
Other operating revenue															
Median	0.6	0.7	0.6	1.2	1.4	1.5	1.0	0.8	0.9	0.9	0.9	0.7	0.7	0.8	0.8
Operating costs															
90 percentile	3.7	3.6	3.8			5.4			4.3			3.9			4.3
Median	2.8	2.6	2.9	3.0	3.8	2.9	3.9	3.6	3.3	3.0	2.6	2.5	1.6	1.7	1.6
Cost-to-income ratio															
90 percentile	78.1	80.7	85.6			91.6			90.4			86.1			84.1
Median	65.8	68.3	73.3	72.7	70.3	68.9	74.4	78.4	73.8	60.5	60.8	59.5	60.7	62.6	64.1
Earnings power															
10 percentile	0.7	0.6	0.4			0.1			0.4			0.4			0.5
Median	1.2	1.1	0.8	0.9	1.0	1.1	1.2	0.9	1.1	1.7	1.5	1.3	1.2	1.2	0.9
Commercial Banks															
Number of observations	128	128	129	160	160	160	80	80	80	67	67	67	86	87	87
ROA															
90 percentile	1.3	1.6	1.3			2.1			1.1			2.2			2.2
10 percentile	0.0	0.0	0.0			-0.1			0.0			-0.3			0.2
Median	0.4	0.3	0.2	0.4	0.5	0.7	0.4	0.6	0.6	0.7	0.7	0.9	0.9	0.9	0.8
Net interest revenue															
Median	2.3	2.0	2.0	2.4	2.1	2.2	3.3	2.9	2.9	3.1	2.7	2.7	2.2	2.0	1.9
Other operating revenue															
Median	1.0	1.2	1.1	1.4	1.6	1.7	1.2	1.4	1.3	1.2	1.1	0.9	1.2	1.4	1.2
Operating costs															
90 percentile	8.9	8.3	8.0			6.9			5.3			4.9			6.0
Median	2.6	2.8	2.7	3.1	4.0	3.1	4.0	3.8	3.6	3.2	2.8	2.6	2.3	2.2	2.1
Cost-to-income ratio															
90 percentile	88.8	94.7	107.0			98.2			101.7			92.3			88.7
Median	58.7	67.4	67.2	72.7	70.3	68.9	74.5	74.7	73.2	63.9	65.0	58.3	54.1	57.6	59.2
Earnings power															
10 percentile	0.0	0.1	-0.6			0.0			-0.1			0.1			0.5
Median	1.2	0.9	0.7	0.9	1.1	1.3	1.1	1.1	1.1	1.6	1.2	1.3	1.6	1.4	1.4
Cooperative Banks															
Number of observations	605	605	605	61	61	60	262	262	262	5	5	5	0	0	0
ROA															
90 percentile	0.4	0.4	0.4			1.5			1.4			1.3			
10 percentile	0.1	0.1	0.1			0.2			0.3			0.5			
Median	0.3	0.2	0.2	0.5	0.7	1.0	1.2	0.7	0.8	1.5	1.3	1.2			
Net interest revenue															
Median	3.0	2.7	2.6	3.0	2.5	2.4	3.9	3.4	3.5	3.5	3.1	3.2			
Other operating revenue															
Median	0.7	0.8	0.7	1.5	1.6	1.6	0.8	0.7	0.7	0.6	0.6	0.4			
Operating costs															
90 percentile	3.8	3.6	3.9			3.5			4.1			2.6			
Median	2.9	3.0	3.2	3.5	4.0	3.0	3.8	3.5	3.3	2.5	1.9	2.3			
Cost-to-income ratio															
90 percentile	78.9	81.5	87.9			78.4			88.9			60.7			
Median	68.5	70.4	76.1	69.9	68.3	67.9	73.6	80.0	75.0	53.3	54.0	53.5			
Earnings power															
10 percentile	0.7	0.6	0.4			0.1			0.4			0.7			
Median	1.1	1.0	0.8	1.3	1.3	1.3	1.3	0.8	1.0	1.8	1.6	1.7			
Savings Banks															
Number of observations	497	496	496	22	22	22	59	59	59	37	37	37	2	2	2
ROA															
90 percentile	0.4	0.4	0.4			0.5			1.2			1.4			1.6
10 percentile	0.1	0.1	0.1			0.2			0.3			0.6			0.7
Median	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.8	0.7	1.0	1.0	0.9	1.4	1.1	1.1
Net interest revenue															
Median	2.9	2.7	2.4	1.6	1.5	1.5	3.8	3.3	3.3	3.6	3.2	3.0	4.2	4.1	3.7
Other operating revenue															
Median	0.6	0.6	0.6	0.6	0.7	0.6	1.2	1.2	1.1	0.8	0.8	0.7	1.5	1.4	1.3
Operating costs															
90 percentile	3.2	3.0	3.2			1.8			4.4			3.0			4.2
Median	2.7	2.3	2.7	1.8	2.1	1.7	4.3	3.9	3.4	3.0	2.6	2.5	3.6	3.7	3.4
Cost-to-income ratio															
90 percentile	73.0	75.6	79.9			79.0			88.2			69.7			78.4
Median	63.0	66.0	70.7	83.8	76.0	73.0	78.1	76.9	70.4	58.7	59.7	61.0	58.1	61.2	63.8
Earnings power															
10 percentile	0.8	0.7	0.6			0.4			0.5			1.1			2.6
Median	1.2	1.1	0.9	0.4	0.5	0.6	1.1	1.1	1.3	1.9	1.6	1.3			2.6

Sources: Fitch IBCA database; and Fund staff calculations.

Figure II-3. Selected Countries: Percent of Banks with Profitability Below a T-bill Rate, 1997-2001



Sources: Fitch IBCA database; and IMF, International Financial Statistics.
 1/ Percentage of sector's banks with ROE lower than a nominal T-bills rate
 2/ Percentage of sector's banks with ROA lower than 5% of a nominal T-bills rate

Table II-7. Comparison of Observed ROA and NI with Estimated Structural ROA and NI, 2001
Balanced Sample with Fixed Effects (1988-2001)

	Observed		Structural		Germany's Structural as a percent of Other Countries	
	ROA	NI	ROA	NI	ROA	NI
Germany	0.20	1.30	0.27	0.79	--	--
Italy	1.00	2.60	1.36	2.15	20%	37%
France	0.70	1.00	0.88	0.28	31%	281%
Spain	0.90	2.40	1.03	1.56	27%	51%
United Kingdom 1/	1.10	1.80	2.06	0.85	13%	92%

Sources: OECD Bank Profitability; and staff calculations.

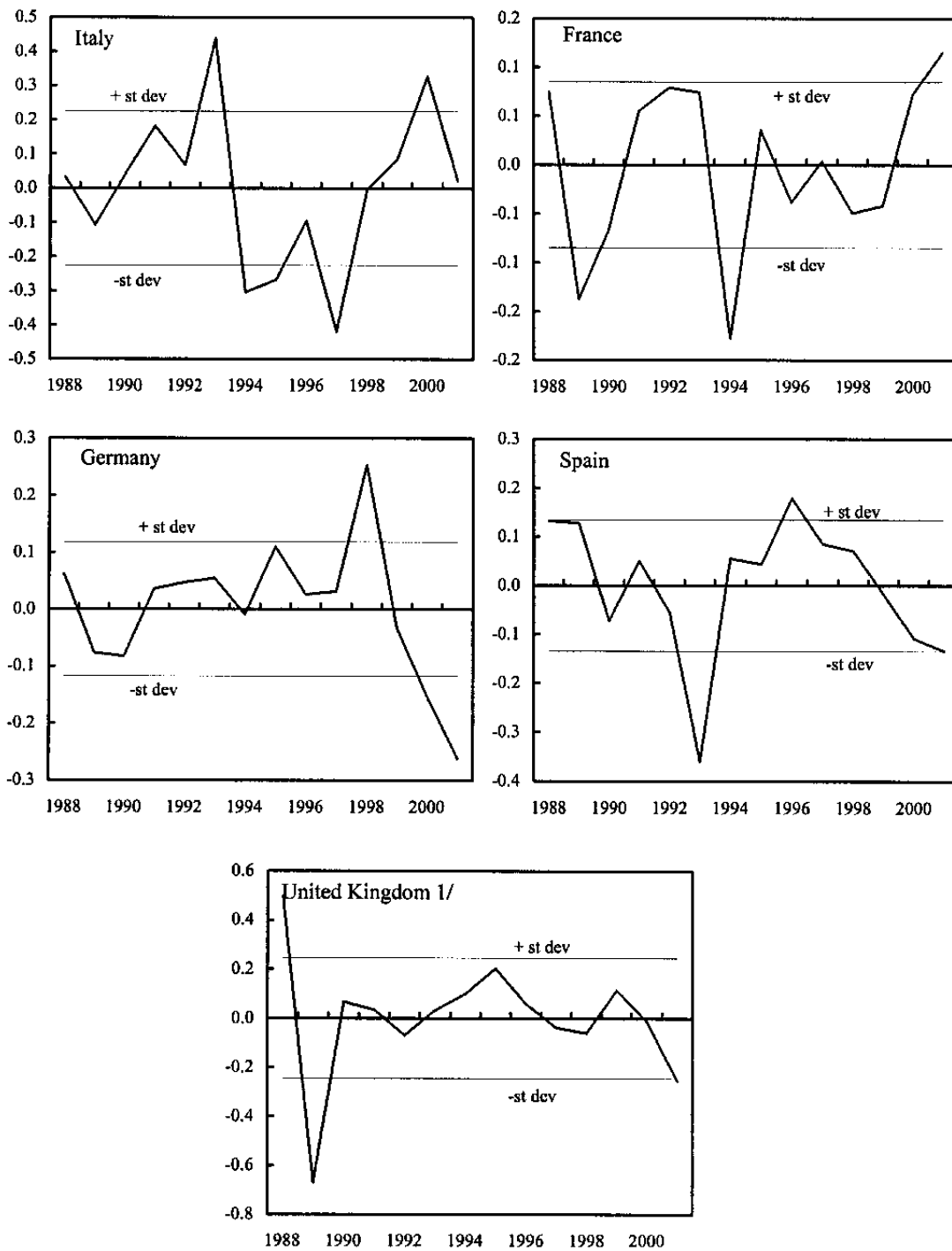
1/ Data for United Kingdom cover only commercial banks.

52. **With respect to NI, the German banking system's structural performance appears in a better light relative to France and the United Kingdom.** This likely reflects the larger share of traditional intermediation business in Germany, particularly lending to nonfinancial firms. However, higher lending also results in higher loan loss provisions, one key difference between *ROA* and *NI*. But underlying the difference between *ROA* and *NI* might well be inadequate pricing of credit risk, recent adjustments to which are widely viewed as having contributed to the recent slowdown in credit growth. Elsas and Krahen (2003) use microeconomic data to study the loan interest rates charged by a cross-section of German banks. They find that the magnitude of risk premia charged to customers is small: the difference between the rate charged to a customer with the equivalent of a single "B" rating (classified as a high default risk) and the reference Frankfurt Interbank Offer Rate is a mere 94 basis points in their data base.

53. **The profitability of German banks also appears to have been especially weak in recent years.** The portions of bank profitability that cannot be attributed to either structural or cyclical factors (regression residuals) have been particularly weak in recent years, falling well below a band of two standard errors (Figures II-4 and II-5), unlike in the other countries reviewed. It appears that the reunification-related boom in activity has masked the relative weakness of the German banking system:²³ it caused a boom in banking business, with a considerable portion of it related to construction lending. However, in the other countries reviewed, the concurrent sharp increase in interest rates in Germany (and related currency devaluations) severely depressed banks' profits.

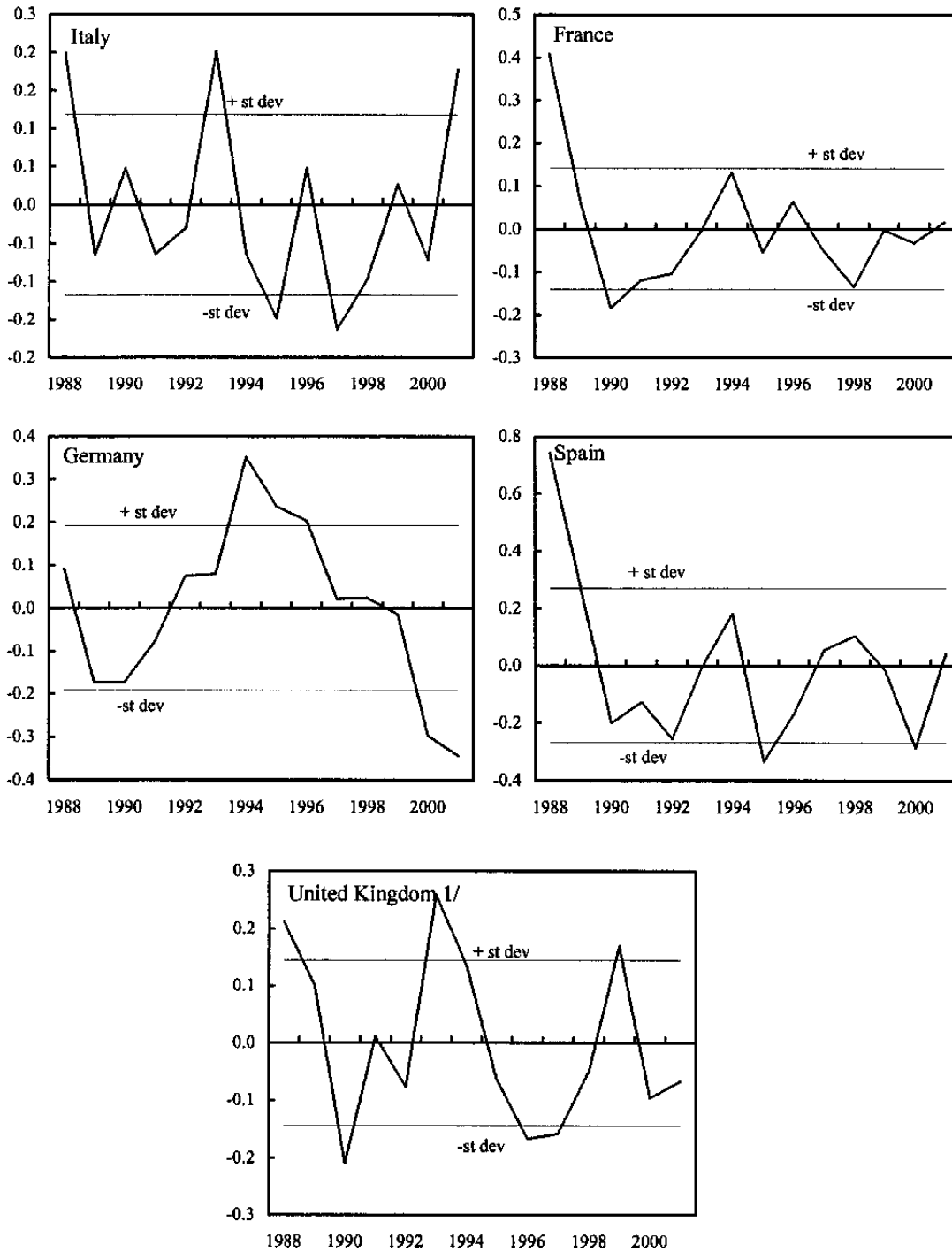
²³ In principle, the output gap should capture this boom in activity; however, the output gap is an imperfect measure of the structural changes that came with reunification.

Figure II-4. Selected Countries: Non-Cyclical Developments in ROA, 1988-2001



Sources: OECD Bank Profitability; and staff calculations.
1/ Data for United Kingdom cover only commercial banks.

Figure II-5. Selected Countries: Non-Cyclical Developments in NI, 1988-2001



Sources: OECD Bank Profitability; and staff calculations.
1/ Data for United Kingdom cover only commercial banks.

Revenues and costs

54. **The underperformance of the German banking system mainly reflects developments in revenues** (Tables II-5 and II-6 and Figure II-2). As in the other countries reviewed, banks in Germany have suffered a steady decrease in net interest revenues as a share in total assets. The decline of margins might be partly due to deregulation and competition from nonbank sources. However, these margins were and remain lower in Germany than in all the countries reviewed except for France.²⁴ Relative to the United Kingdom, Germany's large commercial banks post low margins but not the smaller ones, which are the bulk of the observations in the Fitch IBCA sample.

55. **In Germany, the development of noninterest revenue has lagged that in the other countries reviewed, doing little to offset eroding interest margins.** The decline in interest margins has changed the traditional role of banks and has forced them to search for new sources of revenue. For the category of other operating revenue (OOR) the Fitch IBCA data show that German banks lag behind all the banks of the other countries reviewed, basically in all pillars, with the French banks standing out. This could reflect many factors, including insufficient incentives for innovation among German banks and strong competition due to the large number of credit institutions in Germany.

56. **Banks in Germany have also made less progress in cutting the ratio of operating costs to assets, although they started from a lower cost-to-asset ratio.** The aggregate data as well as the Fitch IBCA data suggest that German banks' cost-to-asset ratio still is in line with or below those of the other countries reviewed, except relative to those of the United Kingdom.²⁵ The lower cost-to-asset ratio of German banks might reflect the more limited engagement in nontraditional bank business, which requires highly skilled labor and expensive technology. However, over time the other countries reviewed have managed to reduce the share of operating costs at a faster pace than Germany, despite building up noninterest revenue.

²⁴ Net interest margins are lower in Germany than in Italy and Spain, across all pillars, probably owing partly to the higher interest rates that used to prevail in these countries. In comparison with these countries, the higher share of lending to other monetary financial institutions in Germany—some 18 percent of assets, relative to 10-13 percent in Italy and Spain (Table II-3)—matters as well. The formal analysis of cost and revenue efficiency in Section B attempts to correct for this.

²⁵ However, the upper decile of cost ratios among commercial banks in Germany is considerably above that in any of the other countries reviewed, possibly suggesting considerable room for savings.

57. **There is no evidence in the indicators that savings banks or cooperatives operate with higher costs.** It might be argued that because these institutions are not subject to market pressures to the same extent as commercial banks, they might not be performing as efficiently. However, both on cost-to-asset ratio and cost-to-income ratios it is hard to spot systematic differences within countries across these various types of institutions.

58. **Several characteristics distinguish banks with low costs or high revenues** (Table II-8). Banks with lower operating cost-to-asset ratios tend to be larger (total assets), with a lower share of personnel in total expenses, and with a lower share of mortgages in total assets. The effect of size on costs is, however, fairly small, in line with existing empirical evidence.²⁶ Banks with high operating income-to-asset ratios tend to have a higher share of fees and commissions in operating income.

Table II-8. Dependent Variable: Operating Costs and Income and Bank Characteristics, 1997-2001

Explanatory variables	Operating expenses-to-assets				Operating income-to-assets			
	Germany		Other EU countries 1/		Germany		Other EU countries 1/	
	Coefficient	(Standard error)	Coefficient	(Standard error)	Coefficient	(Standard error)	Coefficient	(Standard error)
Constant	1.8*	(0.64)	3.3*	(1.26)	1.1**	(0.49)	1.8	(1.49)
Logarithm of assets	-0.01*	(0.00)	-0.01**	(0.00)	-0.01*	(0.00)	0.00	(0.00)
Squared logarithm of assets	-0.00*	(0.00)	0.00**	(0.00)	0.00*	(0.00)	0.00	(0.00)
Share of interest income in operating income	-0.1*	(0.02)	-0.1	(0.04)	-0.1*	(0.01)	-0.2*	(0.05)
Share of net commission income in operating income	5.1*	(0.46)	-1.5*	(0.47)	1.7*	(0.35)	1.0**	(0.55)
Share of personnel expenses in operating expenses	-6.1*	(0.46)	-2.7*	(1.09)	-3.1*	(0.36)	0.6	(1.29)
Loans-to-assets ratio	0.01*	(0.00)	0.00	(0.01)	0.02*	(0.00)	0.00	(0.01)
Mortgage loans-to-assets ratio	-0.02*	(0.00)	-0.03*	(0.01)	-0.03*	(0.00)	-0.01	(0.01)
Deposits-to-assets ratio	-0.02*	(0.01)	0.01	(0.01)	-0.01***	(0.00)	0.01	(0.01)
Equity-to-assets ratio	0.1*	(0.02)	0.0**	(0.02)	0.1*	(0.01)	0.1*	(0.03)

* Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

*** Coefficient is significantly different from zero at the 10 % level.

1/ France, Italy, Spain, and UK.

Why are German banks less profitable?

59. **The relatively low profitability of the German banking system could possibly reflect that profit maximization is not always the paramount objective of public sector banks and cooperatives, combined with intense competition, but these factors do not provide a full explanation.** Various findings point in this direction: (i) all pillars perform less well than their counterparts abroad; (ii) for all pillars, the reasons for the weaker performance appear to lie mainly on the revenue rather than the cost side; (iii) the profitability of many banks is weak, not just that of a few major ones; and (iv) the banking system contains a large number of relatively small credit institutions, both as a whole and within each pillar.

²⁶ For a comprehensive overview of the literature, see the G-10 Report of Consolidation in the Financial Sector (2001).

60. **An econometric analysis confirms that German banks are less effective in generating revenue.** Furthermore, it suggests that cooperatives and savings banks in Germany are somewhat less effective in generating revenue and holding down costs than are regular commercial banks. However, the differences on costs are negligible from an economic point of view and those relating to revenue are too small to explain the gap in revenues of German banks relative to those in the other countries reviewed. Another factor is more competition in Germany. However, while competition in Germany appears to be more intense than in the United Kingdom and France, this is not so in comparison with Italy or Spain. The conclusion emerging is that the presence of a large sector for which profit maximization is not always the paramount objective and intense competition explain only part of low bank profitability in Germany. The remainder is due to other factors; proximal causes could include widespread underpricing of risk and a lower proportion of high-value added activities/outputs owing to less innovation.

Effectiveness of revenue generation and cost control

61. **Simple indicators, such as ROAs and other revenue and cost ratios, are not adequate measures of banks' effectiveness in generating profits.** Differences in these ratios can reflect exogenous or predetermined factors that are unrelated to banks' ability or motivation to generate revenues or manage costs. For example, consider two banks that are identical in all respects, except that one bank is forced by its regulators to hold significantly more capital than the other bank. As a result, the first bank will have lower costs (interest expenses) than its competitor, and therefore a higher ROA (but perhaps lower ROE). In addition to the regulatory environment, other exogenous or predetermined factors include macroeconomic conditions (wage rates, interest rates, cost of fixed capital, growth prospects), the business model (banking with nonfinancial companies or households versus with other credit institutions, retail versus wholesale banking, unit versus branch banking, the degree of risk management), and the level of industry competition. Simple ratio analysis also neglects the interaction between various factors: a bank might have relatively high costs in order to (at least partly) provide high value added services, and be efficient.

62. **An alternative approach is to estimate revenue and cost functions for a sample of banks.**²⁷ The estimated functions—which attempt to control for differences in size, regulatory environments, input costs, and business models—capture “best practices” among the banks in the sample. The results discussed below are based on the full Fitch IBCA sample of banks. The benchmark regressions in column one are simple revenue and cost functions and do not include any exogenous variables (Tables II-9 and II-10). The regressions in column two include exogenous variables that are intended to capture differences in business models (loan-to-asset ratios, deposit-to-liability ratios, and assets-to-employee ratios), while the regressions in the last column also include the capital-to-asset ratio, which proxies for differences in the regulatory environment.

²⁷ See Appendix III for technical details.

Table II-9. Selected Countries: Measures of Revenue Efficiency (Relative to German Banks), 1997-2001
(Dependent variable is the log of operating income plus interest expense)

Selected Coefficients	(1)	(2)	(3)
Dummy Variables			
Spain	16.50 ***	16.42 ***	17.28 ***
United Kingdom	15.30 ***	14.33 ***	16.12 ***
Italy	7.79 ***	7.56 ***	8.53 ***
France	10.48 ***	10.44 ***	10.87 ***
Loans/Assets Ratio	--	-0.26 ***	-0.27 ***
Deposits/Liabilities Ratio	--	0.01	0.01
Assets/Employee Ratio	--	-0.05 ***	-0.06 ***
Equity/Assets Ratio	--	--	-0.25 ***
R-bar Squared	0.99	0.99	0.99
Degrees of Freedom	6408	6403	6402

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

Table II-10. Selected Countries: Measures of Cost Efficiency (Relative to German Banks), 1997-2001
(Dependent variable is the log of interest and operating expenses)

Selected Coefficients	(1)	(2)	(3)
Dummy Variables			
Spain	2.38 ***	2.11 ***	4.41 ***
United Kingdom	-1.30 **	-0.72	3.69 ***
Italy	-2.76 ***	0.39	2.37 ***
France	3.20 ***	4.65 ***	5.85 ***
Loans/Assets Ratio	--	0.03	0.00
Deposits/Liabilities Ratio	--	0.11 ***	0.08 ***
Assets/Employee Ratio	--	-0.21 ***	-0.24 ***
Equity/Assets Ratio	--	--	-0.54 ***
R-bar Squared	1.00	1.00	1.00
Degrees of Freedom	6414	6409	6408

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

63. **The results suggest that low profits among German banks are associated more with relatively low revenue generation rather than with ineffective cost control.** Banks in the other countries reviewed generate 8 to 17 percent more revenues than those in Germany, holding input prices and output constant and after accounting for differences in the business model and the regulatory environment of these banks (Table II-9). Moreover, German banks appear to effectively control costs relative to other European banks (Table II-10).²⁸ While they have slightly higher costs on average compared with U.K. and Italian banks, these inefficiencies can be entirely accounted for by differences in the business model and capitalization. As shown in column two, low deposit-to-liability ratios significantly reduce interest and operating costs, and, therefore, Italian banks benefit significantly from a low dependence on deposits compared to German banks; these ratios are 67 and 93 percent, respectively. Similarly, high capital-to-asset ratios lower interest and operating expenses, which therefore, reduces costs for well-capitalized U.K. banks (and, to a lesser extent, Spanish and Italian banks). After accounting for these differences, German banks have a small advantage (2 to 6 percent less costs) relative to their European counterparts.

64. **German banks' low effectiveness in generating revenue reflects only partly a large segment of market players for whom profit maximization is not always the paramount business objective.** This issue can be investigated by comparing the effectiveness in generating revenue and holding down costs of cooperatives and public sector banks with that of regular commercial banks (Tables II-11 and II-12). Within Germany, savings and cooperative banks are somewhat less effective in generating revenue than commercial banks (about 2 percent less revenue) and also somewhat less effective at controlling costs (about 3 percent higher costs). But with respect to revenue, the gaps relative to commercial banks are not large enough to explain the differences between Germany and the other countries reviewed.²⁹

²⁸ See Altunbas et al. (2001a) for similar results.

²⁹ This contrasts with the conclusions emerging from the simple indicators. As explained below, the formal, econometric analysis tries to gauge the effectiveness in mobilizing revenue or controlling cost of various bank types, holding constant—to the extent possible—for the different types of business models and other external factors. Recall that savings banks post higher ROAs than commercial banks but lower revenue mobilization/cost control effectiveness. Assume further that savings banks do mostly retail banking, while commercial banks mostly engage in other activities. The apparently contradictory evidence would thus reflect that it is easier to mobilize revenue/control cost when pursuing retail rather than other business.

Table II-11. Selected Countries: Measures of Revenue Efficiency (Relative to Commercial Banks), 1997-2001
(Dependent variable is the log of operating income less operating expenses)

Selected Coefficients	(1)	(2)	(3)
Germany			
Cooperative Bank	-2.65 ***	-1.15	-2.22 ***
Savings Bank	-2.00 **	-0.70	-1.61 *
Spain			
Cooperative Bank	-10.03 ***	-9.39 ***	-9.76 ***
Savings Bank	4.12 *	4.22 *	4.03 *
Italy			
Cooperative Bank	0.13	0.09	-0.37
Savings Bank	0.14	0.43	0.14
France			
Cooperative Bank	7.61 ***	8.00 ***	8.03 ***
Savings Bank	4.11	2.82	2.76
R-bar Squared	0.99	0.99	0.99
Degrees of Freedom	6399	6394	6393

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

Table II-12. Selected Countries: Measures of Cost Efficiency (Relative to Commercial Banks), 1997-2001
(Dependent variable is the log of operating income less operating expenses)

Selected Coefficients	(1)	(2)	(3)
Germany			
Cooperative Bank	2.19 ***	2.77 ***	0.30
Savings Bank	2.89 ***	3.27 ***	1.21 ***
Spain			
Cooperative Bank	-2.40	-3.76 *	-5.21 ***
Savings Bank	-3.81 **	-4.65 ***	-5.02 ***
Italy			
Cooperative Bank	-3.72 ***	-3.13 ***	-4.17 ***
Savings Bank	2.91 ***	3.05 ***	2.46 ***
France			
Cooperative Bank	2.15 *	0.21	0.14
Savings Bank	-2.09	-6.87 **	-6.93 **
R-bar Squared	1.00	1.00	1.00
Degrees of Freedom	6405	6400	6399

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

65. **The evidence for all the countries reviewed makes no compelling case for commercial banks being more effective at managing revenues and costs than cooperative and public sector banks.** Significant differences can be observed but they are limited from an economic standpoint and do not go in a consistent direction, in line with evidence in Altunbas and others (2001a and 2001b) for Germany. Germany is the only country for which both cooperatives and savings banks are less revenue effective than commercial banks. In the other countries reviewed, only the cooperatives in Spain lag the commercial banks with respect to revenue. Turning to cost control, again a lower effectiveness for both bank types is only observed in Germany. In Spain, both bank types do better and in Italy and France the evidence points to more effective cooperatives or savings banks, respectively.³⁰

Competition in the banking system

66. **According to various indicators on the supply of banking services, the German system exhibits more competition than do the banking systems in some but not all other European countries.** The number of German credit institutions—which can be seen as an indicator of competition—is relatively larger than those in the other countries reviewed (Table II-4). Also, the German banking system, like the Italian system, is less concentrated (see above). Germany posts the lowest value for the Herfindahl concentration index. However, the large number of banks and banking employees mainly reflects the high number of cooperatives and savings banks. These two pillars operate largely on the regional principle and within each pillar competition is the exception rather than the rule; thus, the Herfindahl index is distorted. Accordingly, Fischer and Pfeil (2003) compute concentration ratios in German cities using data on the number branches. They find that the largest five institutions in each of these markets hold roughly 75 percent of the branches (not market shares), with the local savings bank operating typically some 40 percent of all branches.

67. **Existing microeconomic evidence does not make a convincing case for more intense bank competition in Germany than elsewhere.** Several empirical studies have adapted the Panzar and Rosse (1987) “h-statistic”, which measures revenue elasticities with respect to costs (i.e., the percent change in revenues in response to a percent change in costs). Perfect competition results in an elasticity of one. If the elasticity is positive but less than one, then monopolistic competition prevails. When banks have pure monopoly power, the resulting elasticity is less than zero.³¹

³⁰ Notice that in France the savings banks have recently been turned into cooperatives; in the Fitch IBCA data they are still classified as savings banks.

³¹ Note that this approach circumvents the problem of banks operating on the regional principle, which contaminates the Herfindahl measure of competition.

68. **German public sector banks do not seem to face more competition than other German banks.** Using the Panzer-Rosse approach and a small sample of banks in Germany, France, Italy, and the United States, De Bandt and Davis (2000) find monopolistic competition in all countries. They find that large German banks generally face more competition than other European banks, while the situation of smaller German banks is fairly comparable to their European counterparts. Relative to the United States, European banks typically face less competition, although the authors do not test for the significance of all these differences. Hempell (2002)—using data on virtually all German banks—finds h-statistics that indicate neither perfect collusion nor perfect competition in the German banking system. She found considerably lower h-statistics for cooperatives and savings banks than for the commercial credit banks.

69. **Applying the Panzer Rosse methodology to the sample of banks here does not make a convincing case for more bank competition in Germany than in all the other countries reviewed** (Table II-13). The point estimates indicate that monopolistic competition exists in all countries (that is, for banks grouped by country). German banks as a group appear to face more competition than French and U.K. banks—where pure monopoly cannot be rejected—but are generally comparable to banks in Italy and Spain. These results are consistent with the studies cited above.

Table II-13. Selected Countries: Measures of Competition, 1997-2001

Country	(1)			(2)			(3)		
	H Statistic	Confidence Region		H Statistic	Confidence Region		H Statistic	Confidence Region	
Germany	0.55	0.49	0.60	0.44	0.38	0.50	0.45	0.39	0.51
Spain	0.66	0.49	0.83	0.68	0.49	0.87	0.68	0.49	0.87
United Kingdom	0.26	0.09	0.44	0.15	-0.03	0.32	0.16	-0.01	0.32
Italy	0.40	0.27	0.53	0.44	0.30	0.57	0.44	0.30	0.57
France	0.35	0.16	0.53	0.25	0.06	0.44	0.13	-0.07	0.32

Note: Bold numbers indicate that the confidence region for the h-statistic includes either zero (pure monopoly) or one (perfect competition).

D. How Will the Phase Out of Guarantees Affect the Public Sector Banks?

70. **Public sector banks presently enjoy the benefits of state guarantees.** These guarantees—the “Anstaltslast” (maintenance obligation) and “Gewährträgerhaftung” (liability obligation)—ensure that public sector banks can meet their obligations at any time. In the event of any default, the state is obligated to step in and settle the claims of any and all creditors.

71. **As a result of these guarantees, most public sector banks receive the highest rating by rating agencies.** Public sector banks typically have a long-term rating of AAA from Fitch IBCA; a rating between AA and AAA from Standard and Poors; and a rating between Aa3 and Aaa from Moodys. These relatively high ratings largely reflect the Länder (and ultimately federal) governments’ commitments to maintain the operation of the Landesbanken, irrespective of any losses. In addition, the continued operation of the Landesbanken is guaranteed by the Sparkassen through the institutional protection scheme. Because of these guarantees, public sector banks have access to lower-cost funds relative to their lower-rated competitors.

72. **The public sector guarantees are being phased out.** On July 18, 2001, the European Commission and the German authorities came to an agreement to abolish the public sector guarantees for the Sparkassen and Landesbanken. A transition period of four years was negotiated. Specifically, all obligations entered into prior to July 18, 2001, will be grandfathered in the form of Gewährträgerhaftung; and the same applies for those obligations entered into between July 19, 2001 and July 18, 2005 and maturing before end-2015. All obligations entered into after July, 18, 2005—regardless of maturity—will not have a public sector guarantee.

73. **The removal of state guarantees does not mean that there will be no public support for public sector banks.** First, the public sector will remain the ultimate owner of the Landesbanken, and public support could be forthcoming in the event of a crisis.³² Second, guarantees could still be given provided they are remunerated at market rates. Third, the Sparkassen will still have to stand behind the Landesbanken because of their joint institutional protection scheme. Finally, there is always some expectation for public support of banks in general, particularly for credit institutions that are considered “too big to fail”.

74. **Nonetheless, the phase-out of the guarantees will have an impact on the business operations of the Landesbanken but should have only a limited impact on the Sparkassen.** The removal of public sector guarantees will (in the absence of sufficient compensatory measures) likely raise the cost of funding, particularly the cost of wholesale

³² Such support would have to be cleared with the competition authorities at the European Commission.

funding.³³ Only a few Sparkassen raise funds in capital markets. Instead, they rely on customer deposits and interbank loans for the bulk of their funding needs: the costs of these are not projected to rise significantly following the removal of guarantees. The situation for the Landesbanken is different, as almost one third of their liabilities take the form of securities.

75. **Industry analysts have indicated that the removal of state guarantees would affect public sector banks.** Goldman & Sachs (2001) conclude that one third of the Landesbanken earnings could be at risk. A 2003 report by the rating agency Fitch IBCA discusses the issues for Landesbanken ratings.³⁴ This report asks whether “a single “A” range rating is likely for Landesbanken. It notes that ratings are forward looking and that market observers and players agree that the loss of guarantees will adversely affect the Landesbanken. However, it also elaborates that “*Fitch... is observing the restructuring being undertaken by the banks to improve their financial strength...and the support that will remain available from their owners, primarily the states (Länder) where they operate.*”

76. **The effects of the removal of the guarantees—which will be felt only over a long time span—have spurred important restructuring efforts by the Landesbanken.** Because of their triple-A rating, the Landesbanken have paid about 25 to 40 basis points less on their debt securities in recent years relative to large commercial banks. Since these liabilities comprise about 30 percent of their balance sheet, the interest rate margin and the return on assets of the Landesbanken could fall between 0.08 and 0.12 percentage points once the guarantees are fully phased out, if they are indeed downgraded into the single A range conjectured by Fitch IBCA. The average ROA for the Landesbanken was 0.20 percent over 1991-2001, which underscores the need for business restructuring to soften the effect of the phase out of guarantees. However, whether a downgrading to single “A” will materialize remains an open question for several reasons. First, the Landesbanken have been given the opportunity, until mid-2005, to issue guaranteed bonds with maturities through mid 2015—accordingly, the guarantees will be phased out only in a decade’s time. Second, many have a considerable stock of high-quality, liquid assets that can be used to obtain relatively cheap financing, at least for a period. Third, many are restructuring, including by seeking closer alliances with their Sparkassen. An analysis of the historical relationship between ratings and measures of bank profitability (Appendix IV) suggests that the Landesbanken may need to raise operating income by at least 20 percent or, alternatively, lower costs by at least

³³ Furthermore, as public sector banks, the Landesbanken can issue Pfandbriefe, a privilege they would lose as they turn into a joint stock corporation. However, as a joint stock corporation they can set up a mortgage bank subsidiary, which would operate under the Mortgage Bank Act and thus be allowed to issue Pfandbriefe.

³⁴ *Why Landesbanks are Single “A” Range.*

30 percent to remain viable after 2015. And fourth, their rating will—as the Fitch rating agency explicitly stated—benefit from continued public ownership.³⁵

E. The Structural Adaptation in the German Banking System

Restructuring efforts and hurdles

77. **Without public sector guarantees, the Landesbanken need to improve their earnings and cut costs.** This will also affect the Sparkassen because they are partly owners of the Landesbanken and because they are linked to them via the joint institutional guarantee scheme. Accordingly, as recognized by the institutions themselves, a “no-change” scenario could have adverse consequences for financial stability and is thus not a viable policy option. This section discusses the measures to restructure public sector banking that are underway and the remaining constraints to restructuring.

78. **Preparations for the withdrawal of guarantees are well underway.** Public sector banks are governed by public, Länder-specific law. Also, the various Landesbanken (LB) pursue different business models and their relations with Länder governments and regional savings banks associations differ. Accordingly, all players are involved in the ongoing restructuring efforts. And the measures that are being implemented differ across the various Länder:

- **Teaming up Landesbanken and Sparkassen (vertical integration).** This provides the Landesbanken access to the retail market and thus cheaper funding. It is noteworthy that LB Baden-Württemberg, LB Berlin, and Nord LB already have access to the retail market. Currently many of the other Landesbanken seek a closer association with their local Sparkassen in various forms, e.g., through cooperation agreements (e.g., Bayerische LB) or the development of a group framework to obtain a single rating (e.g., Hessische LB).
- **Teaming up Landesbanken (horizontal integration) to realize returns to scale and reduce costs.** The need for as many as 12 Landesbanken and a multitude of public insurance companies and public mortgage banks is questionable. The cooperative sector manages with a much smaller number of head institutions. Some Landesbanken are already following this avenue: NordLB and Bayerische LB own stakes in Bremer LB and Saar LB, respectively, and are seeking to cooperate in back-office operations; Bayerische LB and Hessische LB have signed a strategic agreement that has resulted in joint activities in several business areas; Hamburgische LB and LB Schleswig-Holstein have merged to form HSH Nordbank; and DGZ/DEKA has

³⁵ Postbank, one of Germany’s largest banks, is publicly owned but does not benefit from guarantees; its Fitch IBCA rating is in the single A range.

been successful in centralizing mutual fund management of the Landesbanken. However, plenty of scope remains for further integration and consolidation.

- **Changing the legal structure of public sector banks.** Some Länder are carving out the business of the Landesbanken that is not in the public interest, phasing out unprofitable operations of the Landesbanken, and are taking steps toward transforming the Landesbanken into joint stock corporations operating under private law (e.g., the Bayrische LB, HSH Nordbank, and WestLB). Steps along these lines would widen the scope for involving private capital at a later stage.

79. **The Länder-specific laws governing Sparkassen and Landesbanken represent a hurdle to efficient restructuring.** First, some forms of consolidation within the public sector banking system—e.g., mergers of Landesbanken or of Sparkassen that belong to different Länder—would require changes to these laws. Second, by virtue of these laws the Landesbanken and Sparkassen are public-law institutions and therefore it is hard for them to restructure by involving the private sector (including seeking private capital). This pertains not only to full privatization but also to placing minority parts of voting stock with the private sector, including the stock market, so as to obtain market signals that could guide the restructuring efforts.

80. **In addition, there are several other hurdles to attracting private capital into the Sparkassen and Landesbanken.** The regional principle limits some business opportunities and could, therefore, make successful Sparkassen less attractive for private capital. Similarly, the institutional protection scheme that links Sparkassen and Landesbanken might discourage private investment because any investor would be potentially liable to help meet the liabilities towards all creditors (not just toward depositors) of any Sparkasse or Landesbank that might fail. However, some reform of the institutional protection is already under discussion, including the introduction of risk-adjusted premiums and maximum burden limits for a single institution. Lastly, the role of public officials on the supervisory boards of Sparkassen and Landesbanken might deter private capital because of fears that profit making might not always be the overriding objective of these boards.

The pros and cons of public sector banking

81. **Following the termination of guarantees and restructuring, a natural question to raise is whether the government should remain the owner of a large portion of the banks.** Public sector guarantees were provided so that local governments would ultimately bear the costs of banking in the public interest. Without the guarantees the banks, in principle, need to achieve a market return on capital, even that from public sources—which requires permission from the EU competition authorities. This section investigates the pros and cons of government ownership both generally and for Germany specifically.

82. **The question can be made more precise: where is the market failure in Germany that requires public ownership of almost half of the banking system as a remedy?**

Various arguments have been made in favor of public sector involvement in banking but many are no longer relevant in today's capital markets and societies:

- Public sector banks can undertake projects with higher public than private rates of return. However, this task is already performed by the national and regional development banks. And, as explained previously, some Länder governments have already separated the private and public business of their Landesbanken.
- Banking is an increasing returns to scale (IRS) activity and therefore intrinsically monopolistic, which justifies public ownership of a network of branches. However, in a broad review of the literature, Ferestieri (1993) finds the IRS run out at a size that falls well short from the point where there would be a danger of market dominance and similar conclusions have been reached by the Group of Ten (2001); most economies of scale seem to be in back-office operations, where the case for public ownership is otherwise weak and where outsourcing is feasible. More fundamentally, privatization has been accomplished successfully in sectors that display more obvious IRS (e.g., telecommunications).

83. **A possible argument for public intervention is that it might be the only way to ensure broad access to financial services.** For the United Kingdom, the Cruickshank (2000) report found important inadequacies with respect to access to basic banking services. Regarding Germany, banks have to offer free savings accounts but only the Sparkassen are legally bound to acquiesce to all requests for opening an account. Accordingly, they contribute to good access to financial services. But the question is whether this justifies public ownership? Several considerations suggest not so. First, the cooperatives and Postbank actually have the densest and most dispersed network of branches, offering access to services in areas where even the savings banks do not operate. Second, if access to financial services was a key concern for society, the government could define a universal service and tender for the lowest subsidy required to deliver the defined service. Third, the government could provide funds earmarked for account services to those that might not be attractive customers for banks (e.g., recipients of social assistance).

84. **Another interesting argument in favor of public sector banks is that they can operate with a long-run perspective, thereby mitigating the short-term and procyclical risk taking of commercial banks.** The argument is valid if credit markets are not perfectly competitive and credit rationing prevails, which may be the case because of asymmetric information, adverse selection, and moral hazard (Stiglitz and Weiss, 1981). It is frequently asserted that public sector banks can more effectively overcome information barriers, by taking a long-term perspective in their client relationships that is facilitated by the absence of private shareholders. Furthermore, it is welfare efficient for a monopolistic supplier to increase output beyond the profit-maximizing point, as plausibly the Sparkassen do. But a similar argument would also be valid for the cooperatives (at least for retail operations). Moreover, while the argument applies to the savings banks—as local SMEs are their main clients within the enterprise sector—it is much less clear whether it can rationalize the need for Landesbanken, which lend little to companies and mostly to those that have access to

capital markets. In fact, only about one fifth of lending by Landesbanken is devoted to domestic nonfinancial companies and private individuals; the equivalent of roughly half of that amount is devoted to foreign nonfinancial companies.³⁶

85. The role of public banks in buffering procyclical risk taking by their private sector counterparts is an empirical question. Regression analysis was used to examine the behavior of prices (net interest margins) and quantities (loan-to-asset ratios) over the economic cycle. In principle, this should be analyzed by specifying a structural model of bank credit. Instead, reduced-form regressions were run to gauge the relation between net interest margins and credit-to-asset ratios on the one hand and indicators of the macroeconomic cycle on the other (output gap and interest rates). The idea is to test whether this relation differs for public sector banks and private commercial banks. The results (Appendix V) suggest that the relation does not differ across bank-ownership types. First, the hypothesis that net interest margins of all institutions—regardless of ownership or business model—behave similarly cannot be rejected. Similarly, the loan-to-asset ratios of public sector banks also appear to behave in a similar manner to those of private sector banks with respect to the economic cycle. However, the results indicate that both commercial banks and Landesbanken have been withdrawing from the traditional loan business. For the Landesbanken, loan-to-asset ratios are estimated to have been declining by about $\frac{1}{3}$ percentage point per annum.

86. The results have to be interpreted cautiously, however. In the current downswing public sector banks expanded rather than contracted credit to companies, unlike their private sector counterparts. On a more technical level, several considerations arise with respect to the regression set-up used above: (i) loans relative to GDP or investment might be a more relevant measure, although data problems preclude its use;³⁷ and (ii) loan-to-asset ratios may hide substitution effects between different loan categories, e.g., from private companies to the public sector. Firm conclusions require the use of data on individual firms and their relationships with banks.³⁸ More fundamentally, whether liquidity insurance through relatively easier access to bank credit in bad times is desirable from a welfare point of view is

³⁶ The figures on credit to foreign companies are from the Bundesverband Öffentlicher Banken Deutschlands, http://www.voeb.de/content_frame/downloads/kennzahl.pdf.

³⁷ The loan-to-asset ratio was chosen instead of the loan-to-GDP ratio to guard against changes in the coverage of the various classes of credit institutions and to capture changes in banks' business practices.

³⁸ Considerable research had been devoted to analyzing whether close relations between firms and banks—such as under the Hausbank model—provide liquidity insurance or advantages in loan pricing. For a review of the evidence for Germany see Elsas and Krahen (2003).

an open question.³⁹ Rajan and Zingales (2003), for example, argue that a market-based system might suit advanced economies better than a relationship or bank-based system, but admit that the trade-offs between the two types of system are complex. Hommel and Schneider (2003) review recent financial developments in Germany's SME sector and conclude that equity shortages coupled with a high dependence on bank debt could become major impediments for the German SMEs.

87. One standard argument against public ownership is that it causes inefficiencies in the provision of services that outweigh the benefits from remedying market failures, but evidence for Germany suggests otherwise.⁴⁰ Both the cooperatives and the public sector banks may not have the same incentive to maximize profits as other banks, because they might not experience the same pressure from capital markets. Accordingly, their management may not be as motivated to pursue efficiency gains or innovation. However, depending on the extent to which their owners can credibly threaten to withdraw deposits, they may have an added incentive to perform well. Publicly-owned institutions may tend to the political objectives of government officials, rather than to social objectives. This argument is forcefully made by La Porta and others (2002). Similar points have been made by Sinn (1999) with respect to the publicly-owned Landesbanken in Germany.⁴¹

88. The example of the Bankgesellschaft Berlin (BGB) serves as a cautionary tale about the pitfalls of public ownership. BGB, a joint stock corporation governed by private law, was established in 1994 by the Land Berlin to consolidate its bank holdings, including the commercial bank—Berliner Bank—which had been founded in 1950 at the initiative of the then mayor of Berlin (Ernst Reuter); the mortgage bank Berlin Hyp; and the Landesbank Berlin. A combination of poor management, exacerbated by political ties, and the bursting of the post-unification real estate bubble in Berlin, caused major losses at the Berliner Bank. In the event, the Land Berlin had to inject funds totaling euro 1.75 billion—some 2.3 percent of Berlin GDP—and guarantee potential risk from real estate fund business until 2031. Efforts to privatize the BGB are ongoing. This example also illustrates that simply turning public sector banks into publicly-owned joint stock corporations under private law might not forestall governance problems.

³⁹ For an interesting perspective on this see Petersen and Rajan (1994).

⁴⁰ For a survey of the literature see D'Souza and Megginson (1999), Megginson and Netter (1999), or Altunbas and others (2001).

⁴¹ For Germany, Sinn argues that "...the political influence exerted on the loans business of the state banks is very great. Even if this influence is in many cases exercised in the interest of higher level regional policy, it nevertheless escapes objective control in terms of economic profitability. The way is opened for rent seeking by interest groups which concentrate their efforts in the political market rather than the economic market."

89. **Another drawback of public ownership is that it distorts the banking market.** Public ownership will continue to provide the Landesbanken with an advantage over privately-owned counterparts with respect to their ratings, as explicitly acknowledged by rating agencies.

The experience with public sector banks in other European countries

90. **Most of the other countries reviewed had a larger public sector banking system than Germany in the early-1980s but this is no longer the case, following reforms.** This section summarizes the experiences of France, Italy, Spain, and Austria as well as Sweden—because of similarities between the banking system of these two countries and that of Germany—in reforming their public sector banks (for country details, see Appendix VI).⁴² Notice that all these countries have a set of banks—commercial banks, cooperatives, and saving banks—that resembles the set of banks in Germany. Furthermore, all but Spain and Sweden had banking systems that were subject to much more public control until the mid-1980s than the system of Germany, mainly because their central governments owned several major commercial banks. However, following ambitious divestment programs, this is no longer the case. In some instances, these divestment programs were a response to major inefficiencies within the publicly-owned banks that were brought to the fore during the economic slowdown in the early 1990s (e.g., in France, Italy, and Sweden).

91. **The countries followed various roads to reform public sector banks that were associated with a wave of consolidation and the emergence of stronger banking systems.** Their central governments divested from major commercial banks, sometimes placing parts of their capital with other banks owned by local governments, foundations, or cooperatives. Italy required, and Austria as well as Sweden allowed the savings banks to transform into joint stock corporations, while France transformed them into cooperatives. Spain maintained the saving banks' separate legal status but allowed them to issue share capital without voting rights and weakened the role of the public sector in their governance. All countries had previously allowed savings banks to become universal banks, abolishing also the regional principle. Consolidation took place mostly through mergers within countries and within bank categories. Also, a stronger banking system emerged, although some scope for efficiency gains might have been sacrificed for social reasons in some countries.

92. **Despite major change over the 1990s, however, the public sector has not withdrawn entirely from banking in the countries reviewed.** Public sector control is exerted in the governance structures of savings banks, including the foundations (Italy, Spain, Austria, Sweden) or, in France, through golden shares in commercial banks. Furthermore, local authorities may also have some influence over cooperatives. Nonetheless,

⁴² Public ownership has not been an issue in the United Kingdom, where however demutualization of cooperatives brought about a major transformation during the 1980s and 1990s.

through the transformation of savings banks into joint stock corporations and legislation fostering the sale of shares owned by local governments, Italy and Austria are continuously weakening the role of the public sector in banking.

F. Summary of Findings

93. **Germany's banking system stands out in Europe because of the large number of credit institutions and the continued strong presence of public-sector banks.** Banks play an important role in Germany's economy; the German banking system is unusually fractured—with a large number of small banks—and the system is less subject to the pressures of the capital market because of the important role of cooperatives and public sector banks. For these banks, profit maximization is not always the paramount objective.

94. **Banks in Germany tend to be less profitable—even in comparisons across similar pillars—and profitability has fallen sharply over the past five years, unlike in the other countries reviewed.** Profitability is lower largely because revenue is weaker, even in pillar-wise comparisons. Costs do not compare favorably with those in several large EU countries, neither are they grossly out of line. This finding, which is evident in revenue- and cost-to-asset ratios, is confirmed by an analysis of banks' profit and cost functions. Furthermore, the analysis suggests that a large sector for which profit maximization is not always the paramount objective and competition explain only part of the low bank profitability in Germany. The remainder is due to other factors, including possibly less adequate pricing of risk and a lower proportion of high-value added activities/outputs.

95. **The flip side of low profitability and revenues in Germany are cheaper services for customers, but the sustainability of the situation remains to be seen.** About one in five commercial banks in Germany—in a sample that covers at least half of the banks in Germany—has posted returns that were below the nominal short-term treasury bill rate during 1997-2001, a much higher fraction than in the other countries. Income from sources other than interest margins is relatively low in Germany. However, high non-interest revenue is one of the distinguishing features of profitable banks in the other countries reviewed. German banks compare better on net operating income than on net returns, which also reflects a relatively high need for provisioning against impaired assets. Viewed from this perspective, the low profitability might also reflect inadequate pricing of loans.

96. **The phase out of government guarantees in Germany is likely to put pressure on profits of public sector banks, requiring measures to restructure.** In the absence of the needed restructuring the phase-out of public guarantees in mid-2005 would probably put most of the profit margin of the Landesbanken at risk with negative consequences for financial stability. The direct effect on the Sparkassen might be limited because few tap the capital market. However, many Landesbanken are partly owned by Sparkassen associations, and all are related through a joint liability scheme. Furthermore, the Landesbanken perform many “increasing returns to scale” type activities on behalf of the Sparkassen. The required adjustments in response to the phase-out of guarantees thus concern all players in public

sector banking, including the Länder and local governments. Accordingly, many changes are already underway.

97. **There is unlikely to be a single business model for success following the abolition of state guarantees, least of all one that is well-known in advance.** Accordingly, flexibility to pursue new business opportunities is important. However, there are obstacles in the way of some forms of reform. First, the Landesbanken and Sparkassen are public institutions governed by Länder law. These laws render within-pillar restructuring that extends across Länder more difficult. Second, because the Landesbanken and Sparkassen are public institutions, it is almost impossible for them to restructure by involving the private sector. Such restructuring might not involve immediate privatization but could entail placing parts of voting stock with the private sector, including capital markets, so as to obtain market signals and shift incentives.⁴³ So far, only a few Landesbanken have taken some steps in this direction, by transforming into joint stock corporations. Third, the regional principle and the institutional protection schemes of public banks can also present obstacles to market-driven restructuring: the regional principle limits business opportunities and the institutional protection scheme puts a contingent liability on potential investors. Fourth, the governance of public banks is largely in the hands of public officials, which might deter private investment.

98. **Another issue is continued public ownership of banks after the phase out of guarantees.** Public ownership entails budgetary and efficiency risks, as one German Land has experienced recently and various EU countries have found earlier. Furthermore, public ownership distorts a level playing field in the banking business. Public ownership also has benefits but it is difficult to identify a large market failure in the German banking system today—which also explains why government guarantees had to be rescinded per agreement with the European Commission. Public sector banks that are more transparent and accountable about their roles in providing a public service would foster an informed public debate about the pros and cons of the public ownership.

99. **Most of the other countries reviewed had a larger public sector banking system than Germany in the early-1980s but this is no longer the case, following reforms.** The restructuring in Italy and Austria, which built on the transformation of savings banks into joint stock corporations and allowed their sell-off, is a relevant example. This is not to deny that the German banking system has been remarkably stable in the post-war period and that financial liberalization comes with risks. Also, the public sector in Italy and Austria continues to wield important influence over banks. However, by turning public banks into joint stock corporations and selling part of the stock to strategic investors or on the stock exchange, these countries managed to harness market signals to guide the required restructuring. Not surprisingly, the restructuring efforts have generally gone along with improving profitability but their implementation also required close supervision to forestall

⁴³ The Postbank has recently announced its intentions to sell a minority share of its shares on the stock market within the next 18 months.

risky behavior. Even those countries that have not chosen to transform saving banks into joint stock corporations, such as Spain, have given the private sector a larger role in the governance of these banks.

Data Sources

100. **Some of the data used to compute banks' performance indicators comes from the FitchIBCA database.** This database compiles data from individual banks' balance sheets and income statements from a large set of countries, according to a harmonized definition of the variables across countries. This allows building a reasonably consistent indicator variables across different national banking systems to make their comparison possible. As all data that are drawn from different balance sheets and different institutions, some inconsistencies remain. However, such inconsistencies are likely to be much larger between individual institutions than between different countries; accordingly, they do not render cross country comparisons less valid than cross institutional comparisons within countries. Since only a subset of banks within each country is represented in the database, the indicators presented in the paper may differ from those reported in central banks bulletins. However, since large banks are all included in the database, differences mainly originate from the characteristics of small banks. In order to avoid double-counting of banks, index and companion codes were used to identify and eliminate banks that were part of a consolidated bank elsewhere in the sample. In addition, for some analyses, only those banks that were available in all three years were included (1997, 1999, and 2001).

101. **The table below lists the number of valid banks for selected European countries from 1997-2001, as well as the actual number of banks—according to OECD data—in each country in 2001.** Notice that the smaller number of banks in Italy in the OECD data for 2001 relates to a different definition of that sector.

	1997	1999	2001	(Actual) 2001
Germany	2404	2369	2431	2696
France	514	484	494	1067
Italy	824	820	828	821
Spain	203	207	203	281
United Kingdom	299	299	308	395

102. **The OECD bank profitability data build on national statistics, reclassified and presented according to a standard framework that was agreed by the OECD Working Party on Financial statistics.**

Cyclical and Structural Profitability Developments

103. **Two OECD measures of bank profitability—pre-tax return on assets (*ROA*) and net operating income as a share of assets (*NI*)—were decomposed into cyclical and structural components using the following regression:**

$$ROA_{i,t} = \sum_{i=1}^5 \beta_{1i} + \sum_{i=1}^5 \beta_{2i} YGAP_t + \sum_{i=1}^5 \beta_{3i} (0.5 * I_t + 0.5 * Is_t) + \varepsilon_{it};$$

$$NI_{i,t} = \sum_{i=1}^5 \beta_{1i} + \sum_{i=1}^5 \beta_{2i} YGAP_t + \sum_{i=1}^5 \beta_{3i} (0.5 * I_t + 0.5 * Is_t) + \varepsilon_{it}.$$

104. **The right-hand-side variables are meant to capture cyclical and structural movements in bank profitability.** The output gap variable (*YGAP*)—which measures the degree to which an economy is operating beyond capacity (positive gap) or below capacity (negative gap)—captures the effect of the economic cycle on *ROA* and *NI*. The average interest rate variable ($0.5 * I_t + 0.5 * Is_t$) and the country-specific dummy variables (β_{1i}) capture the underlying (structural) *ROA* or *NI* of each banking system. The regressions covered a balanced sample from 1988 to 2001.

105. **The right-hand-side variables are generally significant from zero and have the expected signs** (Table II-14). The results indicate that an increase in the output gap generally boosts profitability, although some of the coefficients are not estimated precisely. An increase in interest rates typically increases banks' net interest margins, and thus tends to boost *NI*. With respect to the effects on *ROA*, increases in interest rates also result in losses on loans and bond holdings, which can potential offset the net interest margin effect. The latter effect appears to dominate in all countries except for Germany. For Germany, this might reflect that fact that the period of high interest rates during 1988-2001 coincided with the reunification-related economic boom. The country dummies are also statistically significant and different across countries.

Table II-14. Selected Countries: Regression Analysis of ROA and NI, 1988-2001

Country	Variable	Dependent Variable: ROA			Dependent Variable: NI		
		Parameter	Estimate	Standard error	Parameter	Estimate	Standard error
Italy	Dummy	β_{11}	1.356		β_{11}	2.149	
France	Dummy	β_{12}	0.881		β_{12}	0.281	
Germany	Dummy	β_{13}	0.275		β_{13}	0.790	
Spain	Dummy	β_{14}	1.029		β_{14}	1.563	
United Kingdom	Dummy	β_{15}	2.065		β_{15}	0.855	
Italy	YGAP	β_{21}	0.135	0.060 *	β_{21}	0.115	0.031 *
France	YGAP	β_{22}	0.096	0.014 *	β_{22}	0.035	0.024
Germany	YGAP	β_{23}	-0.020	0.035	β_{23}	-0.099	0.056
Spain	YGAP	β_{24}	0.110	0.022 *	β_{24}	0.091	0.043 *
United Kingdom	YGAP	β_{25}	0.126	0.046 *	β_{25}	0.024	0.027
Italy	II+Is	β_{31}	-0.056	0.026 *	β_{31}	0.082	0.014 *
France	II+Is	β_{32}	-0.064	0.013 *	β_{32}	0.151	0.022 *
Germany	II+Is	β_{33}	0.039	0.030	β_{33}	0.179	0.048 *
Spain	II+Is	β_{34}	-0.004	0.014	β_{34}	0.175	0.028 *
United Kingdom	II+Is	β_{35}	-0.138	0.036 *	β_{35}	0.204	0.021 *

Rbar2=0.74; F-statistic for all β_{1i} equal: 15.1* Rbar2=0.969; F-statistic for all β_{1i} equal: 156*
 Durbin-Waston statistic=1.86 Durbin-Waston statistic= 1.37
 N=5 N=5
 T=14 T=14
 Observations=70 Observations=70

Sources: OECD Bank Profitability; and staff estimates.

A "*" denotes significance at a 5 percent level or less.

Measuring Bank's Revenue Mobilization and Cost Control Effectiveness

106. **The stochastic frontier approach was used to calculate measures of revenue generation and cost control effectiveness that hold constant for a number of exogenous factors.** With this approach, indirect revenue and cost functions are estimated for a sample of banks. The underlying assumption is that banks in the sample face a common technology (in terms of factor productivity) and the same degree of competition.

107. **In order to use the stochastic frontier methodology, several important issues must be addressed.** First, one must decide what constitutes a “banking industry.” One approach is to estimate a single frontier based on a sample that includes all banks. This allows for inefficiency comparisons (distance from the common frontier) across countries and across bank types, but assumes that all banks—regardless of location, size, or business model—face the same technology and the same industrial organization. An alternative approach is to estimate separate frontiers for various countries, bank types, or bank sizes. While this approach allows for differences in bank technology and industrial organization, comparisons of profit maximization behavior can only be made within each subsample.

108. **Second, one must define bank outputs and inputs.** This paper follows the intermediation approach to modeling bank behavior, where labor, physical capital, and liabilities are used to produce earning assets. An alternative view—the transaction approach—is that banks use labor, physical capital, and liabilities other than deposits to produce deposits and earning assets. Note that each approach yields different definitions of revenues, costs, and input prices, as well as different definitions of output.

109. **Finally, one must specify a functional form for the efficiency frontier.** The most common approach—the one pursued here—is the translog specification for indirect profit, revenue, and cost functions:⁴⁴

$$\begin{aligned} \log X_{it} = & \mu_i + \mu_t + \sum_{j=1}^4 \phi_j Z_{ijt} + \sum_{j=1}^2 \alpha_j \log y_{ijt} + \sum_{j=1}^3 \beta_j \log p_{ijt} \\ & + \frac{1}{2} \sum_{j=1}^2 \sum_{k=1}^2 \delta_{jk} \log y_{ijt} \log y_{ikt} + \frac{1}{2} \sum_{j=1}^3 \sum_{k=1}^3 \gamma_{jk} \log p_{ijt} \log p_{ikt} \\ & + \sum_{j=1}^2 \sum_{k=1}^3 \rho_{jk} \log y_{ijt} \log p_{ikt} + \varepsilon_{it} \end{aligned}$$

⁴⁴ See Hardy (2001) for a similar approach.

where μ_i and μ_t are vectors of individual and time effects; Z_{ijt} is an exogenous variable (loan-to-asset ratio, deposit-to-liability ratio, capital-asset ratio, and asset-to-employee ratio) that affects efficiency but not the estimated frontier; X_{it} is either revenues (operating income plus interest expense) or costs (interest expense plus operating expense) for bank i in year t ; y_{it} is bank output (loans and other earning assets); p_{it} is a bank input price (for labor, interest expenses, and other operating costs); and ε_{it} is an error term.⁴⁵

110. **The estimated frontiers capture “best practices” levels of revenues and costs for a given level of output and for given input prices and allow a number of other factors to affect total factor productivity.** The individual fixed effects (μ_i) capture relative measures of management effectiveness across bank groups, while the time fixed effects (μ_t) represent technological progress and aggregate shocks. Finally, the exogenous variables (Z_{ijt}) are intended to proxy for bank differences in the business model and in the regulatory environment. In principle, these exogenous variables should also control fully for differences in the riskiness and value-added of business activities but owing to data limitations this is not possible. This shortcoming needs to be borne in mind when interpreting the results.

⁴⁵ In theory, the error term should have a skewed, non-Normal distribution, but results from similar studies for other countries found little evidence of skewness. The paper thus uses ordinary least squares to estimate the frontiers.

Gauging the Market Value of Guarantees

111. **Ratings data are available for those banks that regularly access the capital markets.** Rating agencies generally assign banks several ratings, with each rating characterizing a different aspect of the bank's strength. For example, Fitch IBCA assigns banks several ratings, including an "individual" and a "long-term" rating. The individual rating measures the bank's overall financial strength, without regard to outside support that might be forthcoming from the state or the bank's ultimate owners. The bank's long-term rating, however, captures both the strength of bank itself (captured by the individual rating) plus any additional support that can be expected from the government or its owners.

112. **The objective of this appendix is to exploit the Fitch IBCA ratings data in order to understand the market value of public ownership and guarantees as perceived by the rating agency.** The ratings data are used in two ways. First, the difference between the long-term and individual ratings provide an indirect measure of public support for that bank. In other words, the loss of that support can be translated into a lower long-term rating and into a higher cost of accessing funds in the capital markets. Second, individual ratings can be regressed on various bank characteristics (balance sheet and income statement variables), which can then provide some insight into what banks can do to boost their Fitch rating following a loss of state guarantees.

113. **There are caveats, of course, to this analytical approach.** First, there is the implicit assumption that Fitch IBCA efficiently rates banks and will continue to do so, even in the face of new uncertainties. Second, there is the assumption that the ratings process can be "uncovered" through regression analysis. In fact, the regressions below only explain between 50 and 80 percent of the variation in the ratings. Third, in Germany, one peculiarity is that the public sector banks provide institutional (rather than deposit) insurance to each other: this may continue after the abolition of guarantees and might support ratings. However, the institutional insurance is presently neither explicitly guaranteed to be forthcoming in case of need nor unconditional. More importantly, it is unclear to what extent it can apply if a large public bank fails, such as a Landesbank.⁴⁶ Nonetheless, the issue needs to be borne in mind in interpreting the difference between long-term and intrinsic financial strength ratings. And finally, the analysis cannot disentangle the effects on the rating of public ownership and public guarantees.

114. **The degree of public support for banks can be gauged by regressing banks' long-term ratings on their individual ratings** (Table II-15). The data sample covers 122 banks in five countries (Germany, France, Spain, Italy, and the United Kingdom) for which Fitch IBCA ratings data are available. The dependent variable in each regression is the Fitch long-term rating, converted from an ordinal to a cardinal ordering (AAA = 16, AA+ = 15, AA = 14, and so forth). The dependent variable was regressed on banks' intrinsic financial strength

⁴⁶ Rather, the scheme should mainly be seen as a vehicle for the regional savings banks associations to offer insurance to individual savings banks whose business is concentrated owing to the regional principle.

rating (also known as the individual rating), a set of dummy variables (representing countries and bank types), on measures of profitability and balance sheet characteristics (including capitalization), and on institutional size (assets).⁴⁷ The regressions in the first two columns are based on a sample of institutions that report regulatory capital. The regressions in the last two columns use total capital as the measure of capitalization; banks in that sample include those that report regulatory capital and those that do not. The coefficients on the dummy variables in columns one and three can be interpreted relative to German banks in general, while coefficients on the dummy variables in columns two and four can be interpreted relative to German commercial banks.

115. The coefficients can be interpreted as the marginal contribution of each independent variable to banks' long-term rating.⁴⁸ The coefficients on the intrinsic financial strength rating are positive and statistically significantly different from zero. The results indicate a one-for-one relationship between a bank's individual rating and its long-term rating—for example, an increase in the individual rating from B to A/B will also tend to raise the long-term rating by one rating category.

116. German banks receive substantial public support relative to their European counterparts, according to the Fitch ratings. As seen in columns one and three, German banks (on average) receive significantly more public support than their European counterparts; this support is worth about two to three rating categories. As seen in columns two and four, the German public support is focused almost entirely on public sector banks. This support is measured to be about 5 rating categories for the Landesbanken, which are classified among specialized government credit institutions in the Fitch IBCA database. That is, in the absence of public ownership and guarantees, based on historical relationships, a rating agency might reduce the average Landesbanken rating to the single A range rather than

⁴⁷ Measures of profitability and balance sheet characteristics (including capitalization), and of institutional size (assets) were included as support in the event of bank failures might more likely forthcome for institutions that are better managed (e.g., more profit or cost efficient) and larger (“too big to fail”).

⁴⁸ The OLS approach assumes that ratings are scaled linearly. The ratings were also estimated using probit models, which allows for a non-linear scaling. The latter yields similar results.

Table II-15. Selected Countries: Determinants of Fitch's Long-Term Bank Ratings, 2001

RHS Variable	(1)	(2)	(3)	(4)
Constant	12.01 ***	9.09 ***	10.48 ***	8.13 ***
Germany Dummies				
Cooperative Bank		1.06		1.02
Savings Bank 1/		3.73 ***		3.63 ***
Specialised Gov't Credit Inst.		5.30 ***		5.19 ***
Med. & LT Credit Bank		2.38 ***		1.99 **
Real Estate / Mortgage Bank		-0.09		-0.33
Spain Dummies				
Spain	-2.49 ***		-2.24 ***	
Commercial Bank		-0.57		-0.40
Cooperative Bank		-0.81		-0.81
Savings Bank		-0.54		-0.54
Med. & LT Credit Bank		0.20		-0.22
United Kingdom Dummies				
United Kingdom	-1.72 ***		-1.79 ***	
Commercial Bank		-0.05		-0.17
Real Estate / Mortgage Bank		0.05		-0.17
Bank Holding Company		0.10		0.49
Italy Dummies				
Italy	-2.00 ***		-1.62 ***	
Commercial Bank		0.21		0.40
Cooperative Bank		-0.51		-0.18
Savings Bank		-0.38		-0.14
Med. & LT Credit Bank		0.20		-0.50
France Dummies				
France	-1.08 **		-1.12 **	
Commercial Bank		0.35		0.25
Cooperative Bank		1.39 ***		1.43 ***
Med. & LT Credit Bank		1.45		1.36
Individual Bank Rating	0.95 ***	0.89 ***	0.93 ***	0.92 ***
Return on Assets	-0.06	-0.06	-0.15	-0.13
Loan/Asset Ratio	-0.02 **	-0.01	-0.01 *	0.00
Tier I Capital Ratio	-0.03	-0.01		
Total Capital Ratio	-0.10	-0.09		
Equity/Asset Ratio			-0.09 ***	-0.08 ***
Assets (trillions of US dollars)	2.16 **	3.61 ***	3.41 ***	3.77 ***
Adjusted R-Square	0.493	0.791	0.449	0.757
Number of Observations	104	104	122	122

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

1/ This dummy represents a Landesbanken-savings bank hybrid, which is categorized by FitchIBCA as a savings bank.

the current AAA rating, as Fitch IBCA discussed in its aforementioned analysis of the matter.⁴⁹

117. Regression analysis can also provide some guidance on the determinants of Fitch's individual bank ratings (Table II-16). The dependent variable in each regression is the Fitch individual rating (A = 7, A/B = 6, B = 5, and so forth). The dependent variable can be regressed on a set of dummy variables (representing countries and bank types), on measures of profitability and balance sheet characteristics, and on asset size.⁵⁰ As before, the regressions in the first two columns are based on a sample of institutions that report regulatory capital, while the regressions in the last two columns use total capital as the measure of capitalization. The coefficients on the dummy variables in columns one and three can be interpreted relative to German banks in general, while coefficients on the dummy variables in columns two and four can be interpreted relative to German commercial banks.

118. In general, German and Italian banks are not as highly rated by Fitch as other European banks, holding profitability and balance sheet characteristics constant. The coefficients on the dummy variables for Spanish, U.K., and (to a lesser extent) French banks are positive and statistically different from zero. These differences could reflect a number of factors, including variances in banking supervision and regulations, financial market organization, or macroeconomic environments. In addition, medium and long-term credit banks in all countries are more highly rated than their counterparts, likely reflecting their relatively lower-risk lending projects.

119. Profitability measures have a significant effect on Fitch's individual bank ratings. The results indicate that the effect of lowering operating expenses has a much stronger impact on the Fitch rating than a comparable increase in operating income.⁵¹ This could reflect the fact that income is generally more volatile than expenses and, therefore, somewhat less valuable to the rating than expenses. The coefficients on operating income range from 0.45 to 0.76, arguing that in order for the Landesbanken to preserve offset the higher cost of funding that might follow a downgrading to the single "A" range conjectured by Fitch IBCA, they might have to increase income 20 to 40 percent. Alternatively, the coefficients on operating expenses suggest, for example, that personnel expenses would need to be cut 30 to 80 percent.

⁴⁹ A lower rating, of course, will affect profitability, which in turn affects a bank's individual rating. This possibility is discussed below.

⁵⁰ There is some feedback from the individual rating to profitability, via the cost of funding. However, since for the majority of banks the bulk of the funding is not very rating sensitive (e.g., customer deposits, interbank loans) any biases are likely to be small.

⁵¹ The null hypothesis that these coefficients are equal but have opposite signs can be rejected at the 1 percent significance level in three out of the four cases.

Table II-16. Selected Countries: Effects of Profitability and Balance Sheet Characteristics on Fitch's Individual Bank Ratings, 2001

RHS Variable	(1)	(2)	(3)	(4)
Constant	5.37 ***	3.46 **	4.12 ***	2.11 **
Germany Dummies				
Cooperative Bank		-1.01		-1.55
Savings Bank 1/		1.11		1.39
Specialised Gov't Credit Inst.		-0.08		0.25
Med. & LT Credit Bank		2.17 ***		2.18 ***
Real Estate / Mortgage Bank		2.09 **		1.50 *
Spain Dummies				
Spain	2.00 ***		2.11 ***	
Commercial Bank		1.65 ***		1.80 ***
Cooperative Bank		2.47 **		3.17 ***
Savings Bank		1.75 ***		1.96 ***
Med. & LT Credit Bank		2.72 ***		3.43 ***
United Kingdom Dummies				
United Kingdom	2.53 ***		2.35 ***	
Commercial Bank		2.44 ***		1.97 ***
Real Estate / Mortgage Bank		2.09 ***		2.36 ***
Bank Holding Company		2.81 ***		2.81 ***
Italy Dummies				
Italy	0.57		0.45	
Commercial Bank		0.96 *		1.02 **
Cooperative Bank		0.47		0.34
Savings Bank		0.27		0.52
Med. & LT Credit Bank		2.34 **		2.28 ***
France Dummies				
France	1.03 ***		1.08 ***	
Commercial Bank		1.08 **		1.18 ***
Cooperative Bank		1.06 *		1.18 **
Med. & LT Credit Bank		2.82 **		3.49 ***
Operating Income/Asset Ratio	0.76 ***	0.74 ***	0.45 **	0.45 **
Operating Expense/Asset Ratio	-1.16 ***	-1.05 ***	-0.56 ***	-0.44 **
Other Net Income/Asset Ratio	0.33	0.43 *	0.17	0.36
Loan/Asset Ratio	-0.01	-0.01	-0.01	-0.01
Deposit/Asset Ratio	-0.02	0.01	-0.02 **	0.01
Money Market Funds/Asset Ratio	-0.02	0.00	0.00	0.02
Tier I Capital Ratio	0.10	0.09		
Total Capital Ratio	-0.11	-0.12		
Equity/Asset Ratio			0.00	-0.03
Assets	0.12	0.46	-0.21	0.16
Adjusted R-Square	0.539	0.566	0.464	0.510
Number of Observations	104	104	122	122

*** Coefficient is significantly different from zero at the 1% level.

** Coefficient is significantly different from zero at the 5% level.

* Coefficient is significantly different from zero at the 10% level.

1/ This dummy represents a Landesbanken-savings bank hybrid, which is categorized by FitchIBCA as a savings bank.

Does Public Sector Bank Lending Behavior Differ?

120. **Some aspects of the behavior of public sector bank lending can be analyzed by running the following regressions:**

$$NI_{i,t} = \sum_{i=1}^5 \beta_{1i} + \sum_{i=1}^5 \beta_{2i} YGAP_t + \sum_{i=1}^5 \beta_{3i} (I_t + Is_t) + \sum_{i=1}^5 \beta_{4i} NI_{i,t-1} + \sum_{i=1}^5 \beta_{5i} trend + \varepsilon_{it},$$

$$L_{i,t} = \sum_{i=1}^5 \beta_{1i} + \sum_{i=1}^5 \beta_{2i} YGAP_t + \sum_{i=1}^5 \beta_{4i} L_{i,t-1} + \sum_{i=1}^5 \beta_{5i} trend + \varepsilon_{it}.$$

The first equation models the net interest margin *NI* (in percent of assets) as a function of (i) the output gap *YGAP*, to test for higher margins or more credit rationing in bad times, as one would expect with asymmetric information and adverse selection; (ii) the average of the short-term and long-term interest rates *Is + II*, as margins are typically considered to rise in line with interest rates; (iii) a lagged interest margin, to allow for a gradual adjustment in the ex-post margin to interest rates; and (iv) institution-specific time trends. The second equation models the loan-to-asset ratio *L* as a function of the same variables, except for interest rates, as their effect on asset composition is unclear. The subscript *i* stands for the type of bank (commercial bank, Sparkasse, Landesbank, cooperative, cooperative head institution) and the equations are fitted for data spanning the years *t* = 1979, ..., 2000. Notice that the equations allow for different equilibrium net interest margins or loan-to-asset ratios across different bank types, to capture, inter alia, their different business mix.

121. **The results do not suggest that public sector banks act as a strong buffer to procyclical risk-taking:**

- Regarding the first equation, F-tests (Table II-17) confirm the hypotheses that (i) all time trends are insignificant, (ii) that the parameter estimates for the lagged dependent variables are the same across institutions, (iii) that the parameter estimates for the output gap are the same across institutions, and (iv) that the parameter estimates of the interest rate are equal as well.⁵² Thus, net interest margins of all institutions behave quite similarly.⁵³

⁵² If the net interest margin is expressed in percent of loans rather than assets, F-tests do not lead to a rejection that all types of credit institutions behave the same except for the central banks of the cooperatives.

⁵³ While the Landesbanken exhibited somewhat less procyclical margins in the unrestricted set-up, this may well have reflected differences in their balance sheet structure. For example,
(continued)

Table II-17. Germany: Explaining the Net Interest Margin (NI), 1980-2001

Parameter (Standard error)	Variable	Commercial banks	Cooperatives	Sparkassen	Cooperative-head	Landesbanken
Unrestricted Model						
N*T=5*21, Rbar2=0.98, DW=1.97						
β_{2i}	YGAP	-0.04	-0.02	-0.05	-0.07 *	-0.03
Standard error		0.03	0.04	0.03	0.03	0.03
β_{3i}	0.5*(I+Is)	0.07	0.08 *	0.11 *	0.05	0.00
Standard error		0.04	0.04	0.04	0.04	0.05
β_{4i}	NI _{t-1}	0.83 *	0.70 *	0.90 *	0.40 *	0.46
Standard error		0.12	0.15	0.16	0.17	0.37
β_{5i}	trend	0.00	0.00	0.01	0.00	0.00
Standard error		0.01	0.01	0.01	0.01	0.01
Restricted Model						
Rbar2=0.98; F-statistic for all β_{2i} equal, all β_{3i} equal, all β_{4i} equal: 0.83, and all β_{5i} equal to zero: 1.52						
β_2	YGAP			-0.03*		
Standard error				0.01		
β_3	0.5*(I+Is)			0.06*		
Standard error				0.01		
β_4	NI _{t-1}			0.79*		
Standard error				0.06		

Sources: OECD Bank Profitability; and staff estimates. A "*" denotes significance at a 5 percent level or less.

- Similarly, for the second equation, the F-tests confirm the hypotheses that all the parameters of the output gap variable are the same; and that all the parameters of the lagged dependent variable are the same (Table II-18). However, they lead to a rejection of the hypothesis of similar/insignificant time trends. In particular, they suggest that both commercial banks and Landesbanken have been withdrawing from traditional loan business. For the Landesbanken, loan-to-asset ratios have been declining by about 1/3 percentage point per annum, according to the time trend parameter.

the total amount of lending to domestic nonfinancial companies and individuals accounted for roughly 20 percent of the Landesbanken balance sheets; for the remainder of the banking system that ratio is twice as large, reaching almost 40 percent. Accordingly, it would be more appropriate to use data on margins broken down by debtor; however, this has not been available.

Table II-18. Germany: Explaining the Loans-to-Assets Ratio, 1980-2001

Parameter (Standard error)	Variable	Commercial banks	Cooperatives	Sparkassen	Cooperative-head	Landesbanken
Unrestricted Model						
N*T=5*21, Rbar2=0.99, DW=2.01						
β_{2i}	YGAP	0.24	0.33 *	0.35 *	0.57 *	0.55 *
Standard error		0.15	0.15	0.15	0.15	0.2
β_{4i}	L_{t-1}	0.91 *	0.89 *	0.74 *	0.47 *	0.94 *
Standard error		0.11	0.11	0.21	0.13	0.15
β_{5i}	Trend	-0.14 *	0.01	-0.1	0.11 *	-0.15
Standard error		0.05	0.05	0.07	0.05	0.19
Restricted Model						
N*T=5*21, Rbar2=0.99, DW=1.87						
F-statistic for (1) all β_{2i} equal, all β_{4i} equal, and all β_{5i} equal: 2.64*; (2) for all β_{2i} equal and all β_{4i} equal: 1.29						
β_2	YGAP				0.37*	
Standard error					0.07	
β_4	L_{t-1}				0.80*	
Standard error					0.06	
β_{5i}	Trend	-0.17*	-0.02	-0.08	0.03	-0.32*
Standard error		0.04	0.04	0.04	0.04	0.08

Sources: OECD Bank Profitability; and staff estimates. A "*" denotes significance at a 5 percent level or less.

Reforms of Public Sector Banks in the EU

122. **The following paragraphs explain briefly the reforms of public sector banks implemented in Austria, France, Italy, Spain, Sweden, and Austria.**

Austria

123. **Austria makes for another example of public-sector bank reform and, as in Italy, both foundations and the private sector continue to play a role in the savings banks.** The public sector and nonprofit foundations played a pervasive role in the Austrian banking system until the early 1990s, owning commercial banks, mortgage banks (Landeshypobanken), and saving banks. During the 1990s, the central government divested from all commercial banks.⁵⁴ Regional governments used to own nine Landeshypobanken but one has been privatized since and others are set to follow. Furthermore, the public sector and nonprofit foundation retain a sharply-diminished influence over the savings banks. The savings banks started out nonprofit organizations, with about half run by the public sector (municipalities) and the remainder by private, nonprofit foundations. The key reforms were: (i) the alignment of the business possibilities of the Sparkassen with those of the commercial banks, including the abolition of the regional principle in 1979; and (ii) the possibility for the Sparkassen to transform into joint stock corporations, following changes to the Sparkassen law in 1986.

124. **The reforms helped in rebuilding the profitability of the savings banks.** They triggered a wave of mergers among the Sparkassen: in 2001, some 67 Sparkassen remained, down from 128 in 1983. By then, 26 Sparkassen had transformed into joint stock corporations and 15 had transferred their stock to foundations. The Sparkassen operate as one group under the Erste Bank. Erste Bank has controlling stakes in other savings banks that collectively account for 75 percent of saving bank business volume in Austria. About 41 percent of Erste Bank stock is foundation owned, 35 percent publicly quoted on the stock market, and the remainder in the hands of other corporations. The consolidation in the savings banks sector and the greater involvement of capital markets contributed to lowering costs and raising the profitability of savings banks, although interest margins declined, owing to competition.

France

125. **Over the past two decades, the pervasive role of the public sector in banking in France was greatly reduced through an ambitious privatization program.** In 1984, state-owned banks held close to 90 percent of deposits and extended about 80 percent of credit.

⁵⁴ For a review of financial liberalization in Austria, see Braumann (2002). Notice that the government retains ownership of three development banks.

Beginning in 1986-87, state divested from all major commercial banks, with the most recent wave concluding in 1997-99. The triad of banks that remain state-owned are *Caisse des Dépôts et Consignations-Trésor-La Poste*. Nonetheless, the state can exert considerable control over the privatized banks, through golden shares. Notice that in various instances the divestiture involved placing capital with core shareholders that made promises to limit job cuts. IMF (1999) argues this practice may have held up cost cutting.

126. Furthermore, the public sector continues to influence banking through the *Caisse des Dépôts et Consignations* (CDC), which ranks among the top five banks, and the savings banks, albeit to a diminishing extent following their recent transformation into cooperatives. The savings banks—which operate as one group—are less important in France than in the other countries reviewed, with a market share of less than 10 percent in 1999. They used to be nonprofit institutions of public interest, with an equity base composed of a “social fund” that was not formally owned by anybody, and operated mainly as bankers for public bodies. The network has consolidated considerably over time, with the number of institutions diminishing from 300 in 1988 to 34 in 1998. Furthermore, they now have only one head institution operating at the national level (*Caisse Nationale des Caisses d’Epargne*-CNCE). As of beginning 2000, the savings banks have been transformed into cooperatives, with their capital owned by local savings societies that, in turn, are selling these shares to public bodies, employees, and enterprises or households. However, the price of the shares is fixed and they cannot be traded on the stock exchange. Shareholders participate in profits and elect the members of the supervisory councils of the savings banks. The public sector retains considerable influence over the savings banks, by (i) confirmation of the president of the CNCE by the Minister of Finance; (ii) the stakes of local public bodies in the savings banks; and (iii) the 35 percent stake of the publicly-owned CDC in the CNCE—the remaining 65 percent are owned by the savings banks.

Italy

127. Italy has reduced the role of the public sector in banking during the 1990s. By 2001, the public sector—which also comprises foundations—had a majority stake in banks that accounted for less than one tenth of banking system assets, down from $\frac{3}{4}$ one decade earlier. The process was initiated with the transformation of banks into joint stock corporations under the 1990s Amato law and subsequent divestment by foundations and the central government. This raised the role of the private sector—most importantly, via the stock market—triggered significant consolidation starting from considerably fragmentation, and allowed some recovery in profitability and financial strength of the banking system.

128. Nonetheless, the public sector continues to exert considerable control over the banking system but further measures are being implemented to reduce that role. The foundations have kept large ownership stakes in the major banks that enable them to wield control. In 2002, foundations are estimated to have held about €50 billion (or almost one third) of total banking system capital. More specifically, of the six largest banks, five have foundations among their key shareholders. The incentives of the foundations differ from those of the private sector, as they are public sector nonprofit bodies. An added concern is

that their governance structures vary and are not always entirely clear. Members of the foundations' supervisory councils are mainly nominated by local governments but, in some instances, also by the central government, the banking associations, the church, universities, or other representatives of society. Legislation adopted in the fall of 2002 aims at clarifying the governance of foundations. More importantly, it obliges the nonprofit foundations to either divest from their controlling stakes in banks or to place their holdings with independent asset management companies by June 15, 2003, pending full divestment by June 15, 2006.

	Foundations' controlling share (in percent)	Number of foundations
Monte dei Paschi di Siena	66	1
UniCredito Italiano	33	3
San Paolo IMI	23	4
Banca di Roma	19	1
Intesa BCI	13	2

Source: Fitch.

Spain

129. **In Spain, the public sector continues to play an important role in the banking system, although measures—less far-reaching than those implemented in Italy—seek greater involvement of the private sector.**⁵⁵ The government used to own regular credit institutions but the last major, publicly-owned bank (Argentaria) was privatized beginning in 1993. At this stage, the public sector's main foothold in the banking system is through control of the savings banks (*cajas de ahorros*), which are owned by private, nonprofit foundations that are supervised by the Ministry of the Economy and the autonomous regions. The *cajas* hold a market share of roughly 40 percent. Several steps were taken to reform the savings bank sector: (i) the regional principle was abolished in 1988—since then two savings banks operate nationally; (ii) the share of representatives of public institutions in the supervisory councils of the savings banks was limited to at most 50 percent in 2002; and (iii) the issuance of special shares to raise capital (*cuotas participativas*, whose remuneration is linked to profits though they do not provide voting rights), theoretically possible since 1990 but subject to restrictive issuance conditions, was facilitated in 2002. The reforms led to a

⁵⁵ The Spanish banking system was considerably less state-dominated than the Italian system at the beginning of the 1990s. The government used to own regular credit institutions—the last major, publicly-owned bank (Argentaria) was privatized beginning in 1993 and still owns a few development banks. Local/regional governments effectively control the savings banks.

number of mergers among the savings banks, with their number now down to 47 from 64 in 1990, as well as an expansion in their market share and continued, relatively high profitability. Nonetheless, unlike in Italy, the savings banks have not been transformed into joint stock corporations: commercial banks or cooperatives thus cannot buy savings banks although the savings banks can buy them.

Sweden

130. The structure of the banking system in Sweden (and other Nordic countries) used to parallel that in Germany until reforms were implemented over the past decade. Private commercial banks serviced primarily corporate clients, quasi-public sector savings banks collected household deposits and made loans to households and SMEs, and cooperative banks had a largely rural client base.⁵⁶ In the course of the 1980s and 1990s, the savings and cooperative “pillars” corporatized, consolidated, and in the end merged with each other to form one large commercial bank concentrating on household business and SME financing.

131. At the end of the 1980s, the roughly 100 savings banks (Sparbankerna) then in existence were organized under seven regional apex institutions and one national institution, which was a corporation owed by the savings banks. The savings banks had a special legal status, and local governments and depositors dominated their supervisory boards. The savings banks had a mandate to promote savings and provide credit; they also provided banking services to local governments. Profitability was a subordinate objective; no dividends were paid, but instead profits were added to reserves. They operated according to a “regional principle,” but cross-regional mergers occurred, and indeed a steady process of consolidation had led by the 1980s to the creation of several large savings banks. The savings bank sector held about 20 percent of banking system assets, but its market share of household deposits and credit to households was about double that.

132. The nearly 400 local cooperative banks (Föreningsbanken) operational at the end of the 1980s were similarly organized under 12 regional “central” banks, of which they were legally the owners, even though the local banks were controlled by the regional banks.⁵⁷ Legally, deposits were taken by the regional banks through the local banks acting as agents, while credits were granted by the local banks. At the national level, the federation of the regional banks, together with the regional banks and some private shareholders owned a commercial bank, that handled wholesale, specialized and overseas

⁵⁶ See Siemers, Monika, *Struktur des Bankwesens in Schweden*, Fritz Knapp, Frankfurt, 1992. Swedish savings and cooperative banks, like their German counterparts, were first founded in the early nineteenth century.

⁵⁷ Due to mergers, the number of cooperative banks had been declining steadily since the 1940s.

operations. Credit was granted only to members, but membership dues for individuals were nominal. Each member had one vote in electing board members and making other important decisions. The Swedish cooperative banks distributed bonus to its members, but profits were mainly kept in the bank as new capital. Assets of the cooperative bank sector constituted about 5 percent of the banking system total, and its share of household deposits and credit to households was about double that. For both the savings and the cooperative sectors, legal restrictions on the range of banking services that could be provided had largely been abolished; differences in specializations between savings banks and others reflected the banks' own choices.

133. The liberalization of the Swedish financial system during the 1980s resulted in rapid credit growth and intensified competition both among banks and between banks and nonbank financial institutions. This intensified competition and expansion in the range and sophistication of financial services provoked a debate within the savings and cooperative bank movements on how they should be restructured to provide modernized corporate governance and how to introduce more flexibility into the capital structure, for example, to fund expansion.

134. The banking crisis emerged in 1991 precipitated implementation of the restructuring plans that had been under discussion for most of a decade.⁵⁸ Early in the crisis, one large savings bank suffered significant losses and a liquidity drain, and the cooperative banks were also markedly affected.⁵⁹ Most losses were covered by the collective reserves of the savings banks in the one case, and in the other by an equity contribution from the owners of the cooperatives and new investors once they were corporatized. State support for these sectors was limited to a relatively modest injection into the one savings bank, and a guarantee for the cooperative bank (which was not called).⁶⁰ However, the need for support did provide the authorities with leverage to accelerate reforms.

135. The restructuring of savings banks was initiated by the passage of legislation designed to facilitate their corporatization. Ownership of those that chose this route was

⁵⁸ An overview of the crisis is provided in Körnert, Jan, "Die Bankenkrise in Nordeuropa zu Beginn der 1990er Jahre: Eine Sequenz aus Deregulierung, Krise und Staatseingriff in Norwegen, Schweden und Finnland," *Kredit und Kapital*, Vol. 35 Heft 2, 2002. One point emphasized there is that the evaluation of credit risk and risk-based pricing, which had been less important in the old, more regulated system, seems not to have kept up with the liberalization process.

⁵⁹ In Finland, a "central" bank for savings banks suffered some of the largest losses in the system.

⁶⁰ The evolution and handling of the crisis are described in Ingves, Stefan, and Göran Lind, "The Management of the Crisis in Retrospect," *Quarterly Review/ Sveriges Riksbank*, 1996.

assigned to local foundations. Then in 1992 the individual corporatized savings banks were effectively folded into the national bank, and the foundations swapped their equity for equity in the national bank. About 90 savings banks (representing only a small share of the savings bank sector) remained legally independent, although they owned shares in the national bank and closely coordinate their activities. Similarly, the 12 regional cooperative "central" banks were merged into the national institution in 1991. In order to meet the need for a capital increase, in 1992 the member institutions voted to de-mutualize and join with the national institution, and parliament provided the necessary endorsement of the change; the initial owners were the former members of the cooperatives.

136. **The cooperative bank was listed on the stock exchange in 1994, and the savings bank followed in 1995, in order to raise Tier I capital.** The two merged in 1997 to form one of the largest banks in the Nordic region, with extensive ties to banks in other countries in Scandinavia and the Baltic. The savings bank foundations still have an ownership share of about 20 percent, and independent savings banks have an ownership share of about 6 percent; most shares are in diffuse ownership. The bank currently seems to be performing well, with a large market share in Sweden, especially for household business, and a ROA and ROE comparable to that achieved by other Swedish banks and banks abroad.

United Kingdom

137. **Recent experience with bank restructuring in the United Kingdom provides fewer parallels with the situation in Germany because the starting position was quite different.** The U.K. banking sector was traditionally divided between commercial banks and building societies, which were mutual association providing housing loans and retail deposit services; a number of specialized banks including a cooperative savings bank also operated, but were of lesser importance. The banking system has been relatively concentrated for some time. For example, in 1984, when liberalization of the building society sector began, only about 100 building societies were left in operation after a merger wave that started already in the 1950s. Since then, a number of building societies, including some of the largest, have de-mutualized and become full-fledged banks; the member-owners, that is, the depositors, shared large pay-outs. Other building societies have chosen to retain their mutual status; in one case a number of members mounted a very public but ultimately unsuccessful campaign to de-mutualize.

References

- Altunbas, Y., Evans, L., P. Molyneux, 2001a, "Bank Ownership and Efficiency," *Journal of Money, Credit, and Banking*, Vol. 33(4), pp. 926-954.
- Altunbas, Y., E.P.M. Gardener, P. Molyneux, and B. Moore, 2001b, "Efficiency in European Banking," *European Economic Review*, Vol. 45, pp. 1931-55.
- Baliño, T. and A. Ubide, 2000, "The New World of Banking," *Finance&Development*.
- Belaish, A., Kodres, L., Levy, J., and A. Ubide, 2001, "Euro-Area Banking at the Crossroads," *IMF Working Paper WP/01/28*.
- Bonus, H. and G. Schmidt, 1990, "The Cooperative Banking Group in the Federal Republic of Germany: Aspects of Institutional Change," *Journal of Institutional and Theoretical Economics*, Vol. 146 No. 1, pp. 180-207.
- Braumann, Benedikt, 2002, "Financial Liberalization in Austria," forthcoming as a Working Paper of the Österreichische Nationalbank.
- Cruikshank, D., 2000, *Competition in UK Banking: A Report to the Chancellor of the Exchequer*, HM Treasury, United Kingdom.
- Davis, P. and S. Salo, 1998, "Excess Capacity in EU and US Banking Sectors - Conceptual, Measurement and Policy Issues," *FMG Special Papers 0105*, Financial Markets Group and ESRC.
- De Bandt, O. and P. Davis, 2000, "Competition, Contestability and Market Structure in European Banking Sectors on the Eve of EMU," *Journal of Banking and Finance*, vol. 24, pp. 1045-1066.
- D'Souza, Juliet and William L. Megginson, 1999, "The Financial and Operating Performance of Privatized Firms during the 1990s," *Journal of Finance*, Vol. LIV, No. 4 (August), 1397-1438.
- Elsas, R. and J.P. Krahen, 2003, "Universal Banks and Relationships with Firms," forthcoming in Krahen and Schmidt (eds), *The German Financial System*, Oxford University Press.
- Ferestieri, Giancarlo, 1993, "Economies of Scale and Scope in the Financial Services Industry: A Review of the Recent Literature," in OECD (ed.), *Financial Conglomerates*, OECD Paris, pp. 63-123.

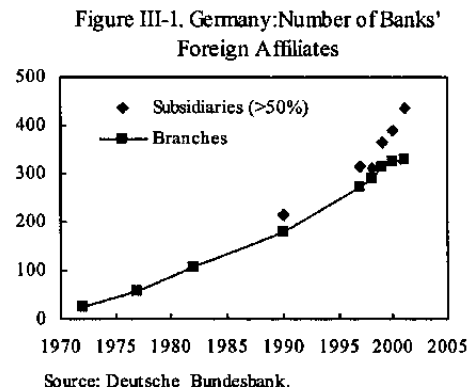
- Fischer, K-H. and C. Pfeil, 2003, "Regulation and Competition in German Banking: An Assessment," forthcoming in *The German Financial System*, Krahen, J. and R. Schmidt (eds), Oxford University Press.
- Goldman and Sachs, 2001, *The Changing Structure of Banking in Germany*.
- Group of Ten, 2001, *Report on Consolidation in the Financial Sector*.
- Hardy, D. and E. Bonaccorsi di Patti, 2001, "Bank Reform and Bank Efficiency in Pakistan," IMF Working Paper WP/01/138.
- Hempell, H., 2002, "Testing for Competition Among German Banks," Discussion Paper 04/02, Economic Research Centre, Deutsche Bundesbank.
- Hommel, U. and H. Schneider, 2003, "Financing the German Mittelstand," EIB Papers, vol. 8, no. 2, pp. 52-91.
- IMF, 1999, Staff Country Report No. 99/139, IMF: Washington DC.
- Ingves, Stefan and Göran Lind (1996), "The Management of the Crisis in Retrospect," Quarterly Review/ Sveriges Riksbank.
- Kodres, L., 1999, "Financial Sector Issues in Germany," in IMF Staff Country Report No. 99/130, IMF: Washington DC.
- La Porta, R., Lopez-de-Silanes, F., and A. Shleifer, 2002, "Government Ownership of Banks," *Journal of Finance*, vol. 57(1), pp. 265-301.
- Meggison, L. William and Jeffrey M. Netter, 1999, *From State to Market: A Survey of Empirical Studies on Privatization*, Fondazione eni Enrico Mattei Nota di Lavoro (Italy); No. 1.99 (January), 1-75.
- Panzar, J. and J. Rosse, 1987, "Testing for Monopoly Equilibrium," *Journal of Industrial Economics*, vol. 35, pp. 443-456.
- Petersen, M. and R. Rajan, 1994, "The Benefits of Firm-Creditor Relationships: Evidence from Small Business Data," *Journal of Finance*, vol. 49, pp 3-37.
- Rajan, R. and L. Zingales, 2003, *Banks and Markets: The Changing Character of European Finance*, in Gaspar, Hartmann, and Sleipen (eds), *The Transformation of the European Financial System*, ECB, Frankfurt.
- Sinn, H-W., 1999, *The German State Banks*, Edward Elgar, Cheltenham, U.K.
- Stiglitz, J. and A. Weiss, 1981, "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, vol. 71(3), pp. 393-410.

III. GERMANY'S FINANCIAL SYSTEM—INTERNATIONAL LINKAGES AND THE TRANSMISSION OF FINANCIAL SHOCKS⁶¹

A. BACKGROUND

138. Owing to Germany's strong international trade links, its large financial institutions have long been highly active around the globe. After tentative steps to restore correspondent bank networks in the post-world war period, a rapid expansion took place in the 1960s and 1970s, both to fulfill the financing needs of a booming export sector and in reaction to intensifying domestic competition from foreign banks with global reach (Huber, 1983). Moreover, as the deutsche mark became established as one of the major international currencies, German banks participated more and more in the intermediation of global capital flows, which offered lucrative profit opportunities compared to a more heavily contested home market.

139. Benefiting from their close financial relationship with German industry, the large commercial banks were first to expand into the international arena. Mirroring the geographical dispersion of German exports, a global network of representative offices and branches owned by the large banks was again in place in the late 1970s (Figure III-1). With the small and medium sized enterprise sector (SME, or *Mittelstand*) also gaining a stronger foothold in export markets, Landesbanken were not far behind in establishing an international presence, growing out of the trade finance and foreign exchange operations for their respective savings banks networks. In 1970, WestLB was the first Landesbank to acquire a large share in a foreign financial institution—only three years later than the first commercial bank—prompting a major discussion at the time on whether such a move was consistent with the public mandate of state banks.⁶²



140. Since these early days, the foreign exposure of German banks has grown at a rapid pace (Figure III-2). In the BIS statistics, Germany's banks have led other countries with a consolidated exposure of \$2.2 trillion as of September 2002 (Table III-1). The bulk of this exposure is with mature industrial economies, particularly within the European Union, but Germany has also become the second largest lender to developing countries after the

⁶¹ Prepared by Martin Mühleisen (in ICM when the project was initiated), with input on insurance issues provided by Nigel Davies and Matthew Jones (both MFD).

⁶² Büschgen (1983) provides an overview of the development of the German universal banking system in the second half of the 20th century.

United States. This reflects in part the strong links between Germany and its Eastern European neighbors, many of which are candidates to join the European Union. A substantial part of international claims is generated by foreign subsidiaries, particularly in the United States, the United Kingdom and Austria, where German banks have made a number of acquisitions in recent years. Roughly a quarter of total consolidated lending is accounted for by these subsidiaries' local currency claims, but especially the London and New York branches are also running a major international business.⁶³

141. German companies have also played a major role in the global insurance market. As in banking, the international activities of German insurers have grown with the expansion of foreign trade, starting in the late 19th century.⁶⁴ The high demand for insurance products in Germany enabled insurers to restore business relatively quickly after both world wars, and existing foreign operations were also mostly restored. With a few exceptions, German insurers are largely concentrated on the European market, which accounts for roughly 90 percent of total premiums. The German insurance market itself is the fourth largest in the world, accounting for some 5 percent of world premium volume in 2001 (Swiss Re, 2002). German insurers are particularly dominant in reinsurance, where they accounted for more than a quarter of the world market in 2001, with four of the ten largest reinsurance companies domiciled in Germany.^{65,66}

142. Germany's financial markets have become closely integrated into the global marketplace in recent years. Although the banking sector has retained its dominant role in financial intermediation, *Deutsche Börse AG*—which is running the Frankfurt stock exchange—has emerged as a major international competitor, even though its aspirations to develop the *Neuer Markt* as Europe's leading market for start-up and technology listings have been disappointed. Moreover, German government bonds provide a benchmark for European long-term interest rates, and the German *Pfandbrief*, which is now being widely

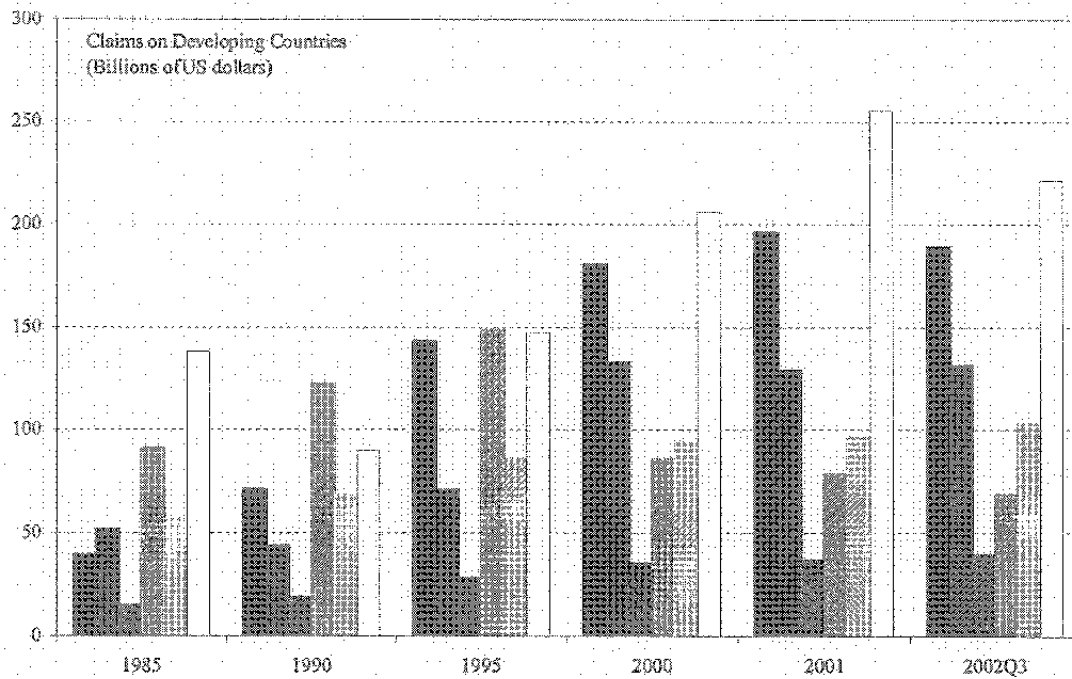
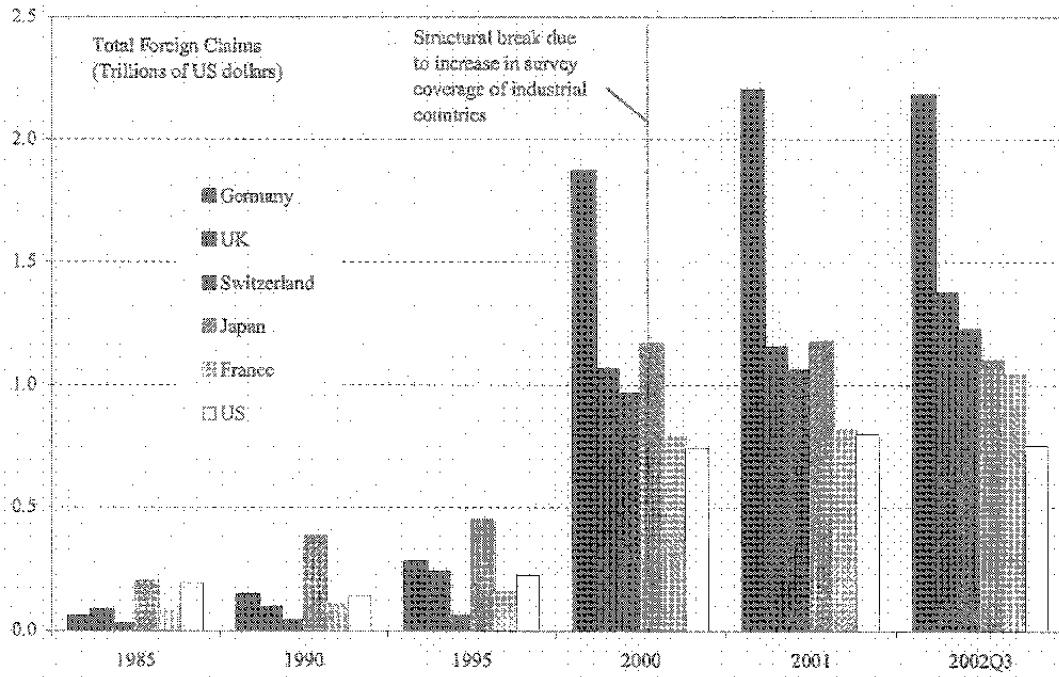
⁶³ The BIS does not provide separate lending data for banks' domestic and foreign affiliates. Bundesbank data suggest that total assets held by foreign affiliates are almost as large as the consolidated exposure itself (see Table III-1.), but information on offsetting liabilities vis-à-vis German parent banks is not available.

⁶⁴ Allianz already had a significant exposure to the San Francisco earthquake in 1908.

⁶⁵ Notice that Gerling Global RE decided to stop large parts of its business in October 2002, leaving only three companies among the ten largest reinsurance companies in the world domiciled in Germany.

⁶⁶ Based on net premiums written (Standard and Poor's, 2002). By contrast, foreign insurers account for only fifteen percent of business in the domestic market on a gross premiums basis (OECD, 2002).

Figure III-2. Germany: Foreign Claims by Nationality of Reporting Banks



Source: Bank of International Settlements, Consolidated Banking Statistics.

Table III-1. Germany: International Exposures of Banks
(In billions of euros unless otherwise noted; as of September 2002)

	Developed countries	Offshore centres	Developing countries and emerging economies					Other ¹	Total
			Total	Europe	Latin America/ Caribbean	Africa/ Middle East	Asia/Pacific		
Foreign claims on a consolidated basis									
Total foreign claims	1,905.3	106.7	191.7	89.1	32.7	21.5	48.3	9.4	2,213.1
Consolidated cross-border claims in all currencies and local claims in foreign currencies	1,384.2	98.4	160.5	66.9	31.1	20.8	41.7	9.4	1,652.6
<i>of which claims against:</i>									
Banks	536.2	16.8	39.4	16.3	4.7	6.0	12.5	0.0	592.4
Public sector	168.5	0.2	39.4	14.1	5.0	7.4	12.8	9.3	217.4
Non-bank private sector	679.6	81.5	81.7	36.5	21.4	7.4	16.4	0.0	842.8
Local currency claims of reporting banks' foreign affiliates on local residents	521.1	8.3	31.1	22.2	1.6	0.7	6.6	0.0	560.5
<i>Memorandum items:</i>									
Composition of foreign claims (in percent)	86.1	4.8	8.7	4.0	1.5	1.0	2.2	0.4	100.0
Undisbursed credit commitments and back-up facilities	464.5	28.6	39.6	17.2	5.5	6.6	10.3	2.1	534.8
Assets of foreign branches and subsidiaries (unconsolidated)	1,452.6	155.1	112.2	51.5	11.2	2.1	23.0	24.5	1,744.4
Branches	1,079.7	130.6	50.4	7.7	5.9	0.8	19.2	16.8	1,277.6
Subsidiaries	372.9	24.5	61.8	43.9	5.3	1.3	3.8	7.6	466.8
Cross-border lending by banks located in Germany (domestic and foreign currency)²									
Total cross-border loans	769.4	69.3	93.4	36.4	16.0	15.1	25.9	3.1	935.2
<i>of which claims against:</i>									
Banks	513.2	43.8	25.1	11.6	2.5	4.1	6.9	0.0	582.1
Non-banks	256.2	25.5	68.3	24.7	13.6	11.0	19.0	3.1	353.1
<i>Memorandum item:</i>									
Composition of cross-border loans (in percent)	82.3	7.4	10.0	3.9	1.7	1.6	2.8	0.3	100.0

Source: Bank for International Settlements, *Consolidated Banking Statistics* and *Locational Banking Statistics*.

¹International organisations and unallocated claims.

²Includes German branches of foreign financial institutions, but excludes foreign affiliates of German banks.

imitated throughout Europe, has gained popularity as an alternative to government-issued instruments.⁶⁷ The government has sought to improve the legal and institutional framework, including through the Fourth Financial Market Promotion Act in 2002 that focused on investor protection and financial disclosure, and will continue to do so in the context of the Financial Market Promotion Plan 2006, aiming inter alia to improve the legal and economic framework for the development of the market for asset-backed securities and for the operation of hedge funds. Further legislative action to strengthen corporate governance and accounting practices—partly designed to keep Germany in step with international best practices—is currently in the planning stage.

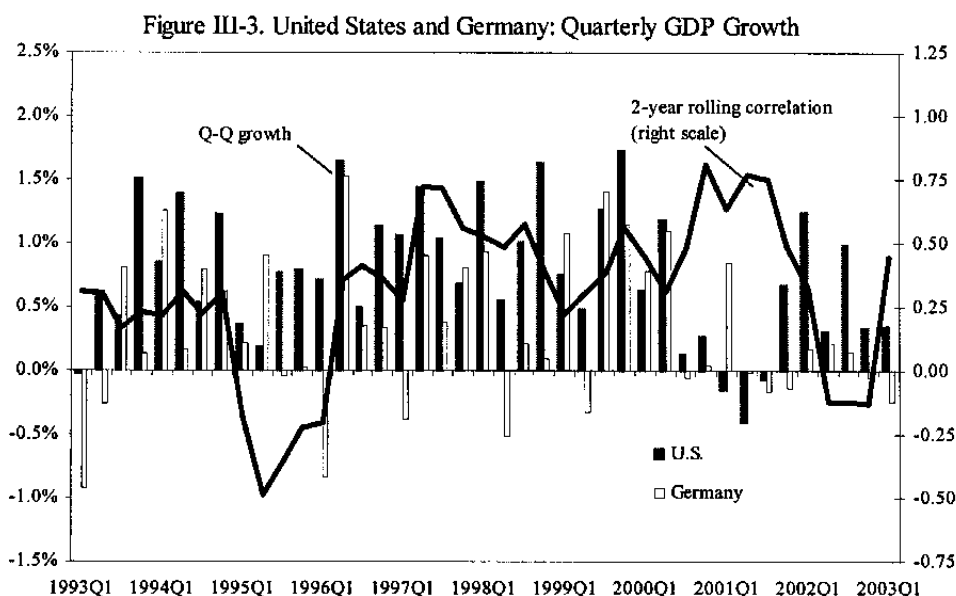
B. KEY TRANSMISSION CHANNELS FOR EXTERNAL SHOCKS

143. **Close economic and financial integration in the world economy exposes Germany's financial system to fluctuations in the global marketplace.** Germany has benefited strongly from its extensive trade links with other countries, and foreign financial markets provide welcome opportunities for risk and revenue diversification. Similarly, domestic borrowers—especially the government—have been able to secure funding at relatively favorable interest rates on the back of strong foreign demand for German securities. At the same time, however, international linkages also serve as a conduit for the transmission of external shocks to the domestic economy and financial system. There are four major channels—macroeconomic cycles and market correlation, large holdings of foreign assets, competition for foreign capital, and liquidity shocks.

Macroeconomic linkages and market correlation

144. **Since the mid-1990s, Germany's economic performance appears to have been highly correlated with other industrial countries, especially the United States.** To some extent, the synchronization of real economic cycles may be a result of growing economic and financial integration, although the academic literature is still divided on this subject (Helbling and Bayoumi, 2003; Kose *et al.*, 2003; Lane and Milesi-Ferretti; 2003). In Germany, however, persistent weakness in domestic demand has implied that the economy has become increasingly dependent on exports, which account for roughly 30 percent of GDP. Indeed, with the U.S. economy providing much of the global growth impulse, German and U.S. GDP growth has been highly correlated in the past decade (Figure III-3).

⁶⁷ Pfandbriefe are covered bonds with mortgages or public sector loans as underlying securities. Unlike in ABS structures, the original loans remain on the balance sheet of the issuer, where they have to be set aside from other assets. Pfandbriefe can only be issued by specialized financial institutions, most of which are owned by the large banks.

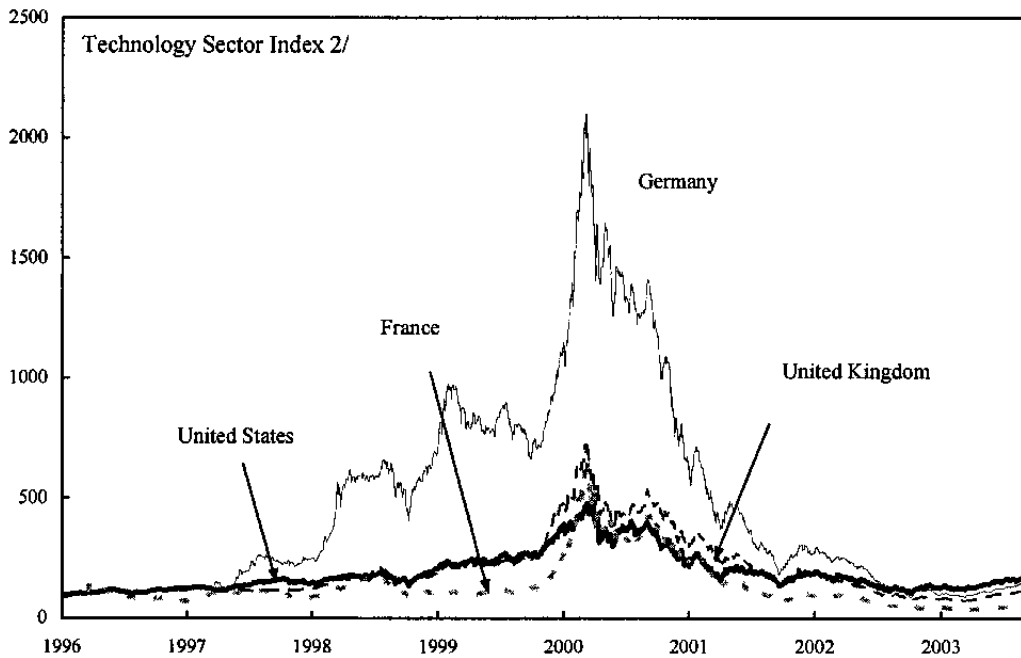
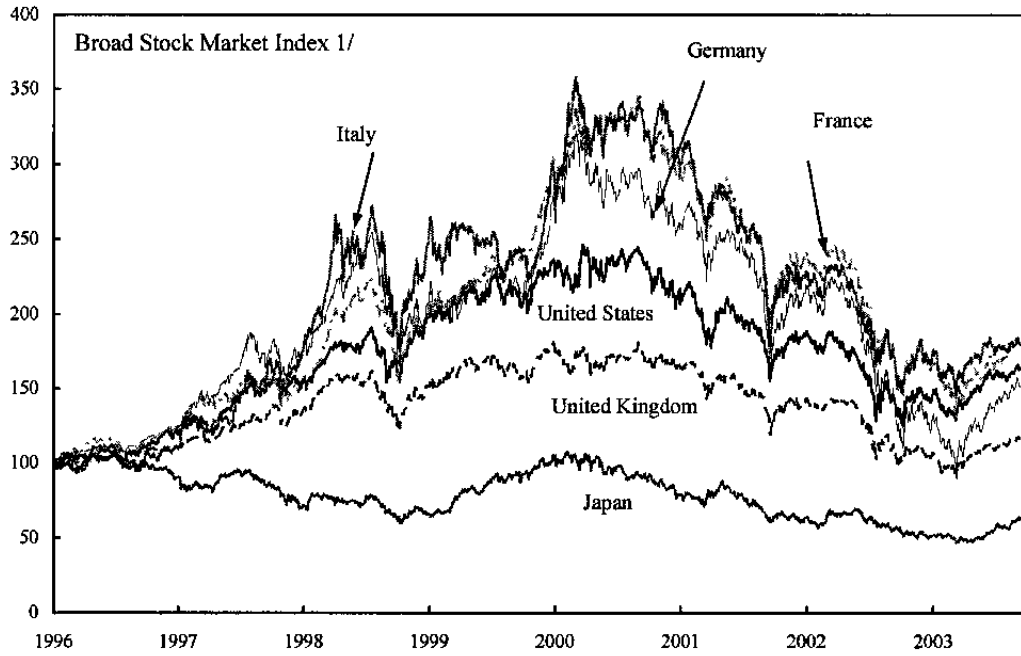


145. **Partly as a result, German stock markets have moved closely in line with other international markets.** As in many other countries, the increase in share valuations went along with the U.S. equity bubble, driven by the long U.S. expansion, the global internet boom and the spread of new technologies. Although the *Dax* index has performed broadly in line with other European indices since the mid-1990s, German equities have exhibited higher fluctuation compared to other countries (Figure III-4).⁶⁸ In particular the tech-heavy *Nemax* stood out, having experienced a much sharper rise following its inception in 1997 than other technology stock indexes. Yet, even the *Neuer Markt* fell to earth at around the same time as other tech markets, and German technology stocks are now trading around 1997 levels, comparable to those in other markets.

146. **Statistical analysis suggests that the degree of correlation between German and U.S. financial markets has steadily increased since the mid-1990s** (Figure III-5). Besides strong macroeconomic links, possible explanations for this development include growing interdependencies through cross-border mergers and acquisitions; increasingly seamless integration of global financial markets; and the established benchmark function of Wall Street for global securities trading (Login and Solnik, 2001; Brooks and Del Negro, 2002; Catao and Timmerman, 2003). Although the degree of co-movement may diminish after the market has found its bottom, these factors suggest that global markets will retain a strong influence on German markets.

⁶⁸ Market observers associate this phenomenon with the relatively high index weights of financial, technological, and export-oriented companies.

Figure III-4. Germany: Stock Prices in Selected Major Industrial Countries
(January 1, 1996 = 100)

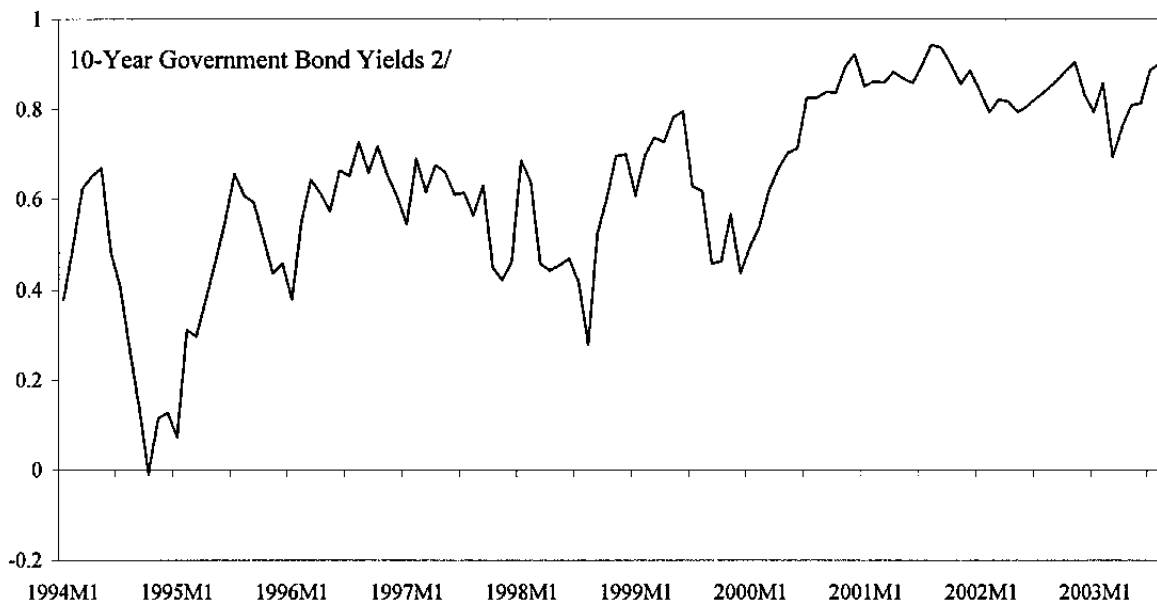
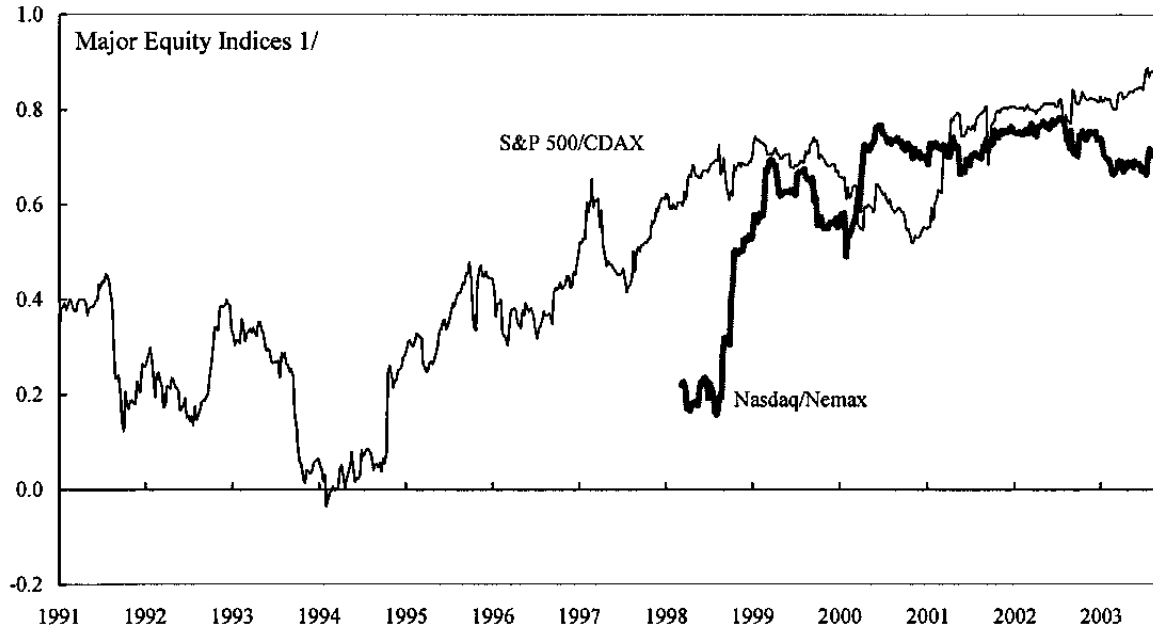


Source: Bloomberg L.P.

1/ For United States, Standard & Poor's 500 Index; for United Kingdom, FTSE 350 Index; for Germany, Dax 100 Index; for France, SBF 250 Index; and Italy, MIB 30 Index; and for Japan, Topix.

2/ For United States, Nasdaq Composite Index; for United Kingdom, FTSE techMARK 100 Index; for Germany, Nemax All-Share Index; and for France, Nouveau Marché Index. Data for Nemax All-Share and Nouveau Marché start in March 1997 and March 1996, respectively. Therefore these indices are rebased to the level of the Nasdaq on these dates.

Figure III-5. United States and Germany: Correlation of Equity and Bond Prices



Source: Bloomberg.

1/Rolling 12-month correlation of weekly changes.

2/Rolling 12-month correlation of monthly changes.

Foreign asset holdings

147. **Credit shocks in overseas markets provide another transmission channel, with potentially significant effects for banks and bond investors.** Foreign loans and bond holdings of German banks account for at least 20 percent of total loan and bond exposures, reflecting the global orientation of parts of the German banking system (Table III-2). As a result, banks are vulnerable to a deterioration in foreign credit quality, in particular because outstanding loans to emerging economies as a whole are still substantial (see Table III-1).⁶⁹ However, nearly half of these exposures are to countries in Eastern Europe, including EU accession countries. Furthermore, these exposures have been a major source of profits for many years, and reflect a strength of the German banking system in the sense that credit risk has been more diversified than if banks would have focused only on the domestic market.

Table III-2. Germany: Composition of Bank Assets¹
(as of June 2002; in billions of euros)

	Total	of which: Foreign
Total assets	6,320	1,268
of which:		
Loans	4,622	884
Bonds and notes	1,022	288
Shares and equity	327	80
Shareholder equity	243	...

Source: Bundesbank.
¹Excluding foreign branches and subsidiaries.

148. **Risks for bond investors have declined with the introduction of the euro.** The elimination of currency risk within the euro area has likely been the main factor behind the increase of foreign bond investments since the mid-1990s (Table III-3). Indeed, roughly two thirds of foreign bond holdings originates from countries within the euro area (Table III-4). A large amount of foreign bonds placed in Germany had already been denominated in deutsche mark prior to the introduction of the euro, but with the onset of monetary union, the ratio of foreign bond holdings denominated in the domestic currency has also risen to around two thirds. This has benefited both institutional and individual investors, including because hedging expenses for the former have dropped significantly.

149. **Nonetheless, nonfinancial investors continue to face credit, market, and foreign exchange risks from foreign bond and equity holdings.** Foreign holdings account for roughly one half of nonfinancial investors' bond and equity portfolios, which is considerably higher share compared to financial institutions (Table III-5). The distribution of these assets is not precisely known, but portfolio survey data for all German investors suggest that around 40 percent are located outside the euro area (see Table III-4), with the bulk in the United States and the United Kingdom. While currency exposures are to some extent hedged, especially in the case of corporate and institutional investors, it is not clear how these hedges would perform under a sudden and large realignment of major currencies.

⁶⁹ As discussed above, a large proportion of international loans is held through foreign affiliates of German banks, and is therefore not reflected in Table III-2. If this is taken into account, roughly a third of consolidated loan exposures could be outside of Germany.

Table III-3. Germany: Bonds in Circulation¹
(In billions of euros)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	June 2002
Bonds in circulation	973.6	1,187.6	1,455.8	1,463.3	1,698.4	1,854.0	2,018.9	2,330.7	2,410.8	2,641.4	2,898.5	...
By issuer												
Nonfinancial corporations	32.7	52.6	109.5	129.9	53.8	49.2	44.3	42.9	35.8	39.3	43.7	...
Public institutions	282.5	368.8	460.1	476.2	613.1	642.5	679.0	735.8	730.2	765.3	782.6	...
Financial sector	509.9	595.4	704.1	690.7	835.7	943.8	1,021.8	1,189.9	1,229.5	1,335.7	1,468.0	...
Rest of world	148.5	170.8	182.2	166.5	195.8	218.4	273.8	362.2	415.3	501.1	604.1	...
(in percent)	15.3%	14.4%	12.5%	11.4%	11.5%	11.8%	13.6%	15.5%	17.2%	19.0%	20.8%	...
By holder												
Nonfinancial sector	315.8	344.2	353.5	364.7	426.6	428.5	425.7	421.8	466.5	513.2	596.0	...
Financial sector	524.3	636.5	768.6	792.8	889.0	989.3	1,091.9	1,306.1	1,305.9	1,402.6	1,516.2	...
Monetary financial institutions	348.4	439.5	536.4	557.5	617.2	686.9	752.7	920.5	903.8	996.2	1,077.8	...
Other financial institutions	96.3	102.4	126.1	136.3	161.5	191.8	228.8	268.6	304.2	320.0	347.2	...
Insurance companies	79.6	94.6	106.0	99.0	110.2	110.5	110.4	117.1	97.8	86.3	91.2	...
Rest of world	133.5	207.0	333.6	305.8	382.9	436.3	501.4	602.7	638.4	725.7	786.2	...
(in percent of bonds placed by German issuers)	16.2%	20.4%	26.2%	23.6%	25.5%	26.7%	28.7%	30.6%	32.0%	33.9%	34.3%	...
Currency composition												
Residents' investment in foreign bonds	...	...	...	193.1	216.9	235.2	297.3	360.6	465.8	547.4	645.6	657.0
Domestic currency ²	...	...	...	58.8	67.0	70.9	79.4	97.7	236.3	314.5	408.3	444.4
Foreign currency ³	...	...	...	134.3	149.8	164.3	218.0	262.9	229.5	232.9	237.3	212.6
(in percent)	...	...	...	69.5%	69.1%	69.9%	73.3%	72.9%	49.3%	42.5%	36.8%	32.4%
Foreign holdings of bonds issued by residents	...	...	...	306.1	383.2	443.7	512.2	610.0	645.8	733.2	825.7	865.7
Domestic currency ²	...	...	...	283.7	345.4	383.5	428.7	508.6	567.0	644.5	711.7	758.4
Foreign currency ³	...	...	...	22.4	37.8	60.2	83.5	101.4	78.9	88.8	114.0	107.2
(in percent)	...	...	...	7.3%	9.9%	13.6%	16.3%	16.6%	12.2%	12.1%	13.8%	12.4%

Source: Deutsche Bundesbank, *Germany's Financial Accounts, 1991 to 2001*; *Balance of Payments Statistics*.

¹The amount of cross-border bond holdings differs slightly between Financial Account and BOP statistics, owing to a lack of detailed statistical information.

²Including bonds issued in currencies of euro area members countries from 1999.

³Excluding bonds issued in currencies of euro area members countries from 1999.

Table III-4. Germany: International Portfolio Investment: Assets and Liabilities, 2001

	\$ billion	Percent		\$ billion	Percent
German portfolio investment assets, by economy of issuer					
Bond holdings	401.6	100.0	Equity holdings	381.2	100.0
Euro area	261.2	65.0	Euro area	227.5	59.7
Italy	67.3	16.8	Luxembourg	93.1	24.4
Netherlands	53.8	13.4	France	47.2	12.4
Austria	29.2	7.3	Netherlands	32.0	8.4
France	26.1	6.5	Spain	13.9	3.7
Spain	25.2	6.3	Finland	13.7	3.6
Others	59.5	14.8	Others	27.5	7.2
United States	34.9	8.7	United States	69.9	18.3
United Kingdom	28.0	7.0	United Kingdom	44.4	11.6
Cayman Islands	11.9	3.0	Switzerland	21.6	5.7
Denmark	7.9	2.0	Japan	5.8	1.5
International organizations	7.0	1.7	Sweden	2.9	0.8
Sweden	6.2	1.5	Bermuda	1.2	0.3
Canada	4.9	1.2	Mexico	0.9	0.2
Japan	4.6	1.2	Russian Federation	0.9	0.2
Hungary	4.5	1.1	Korea, Republic of	0.9	0.2
Turkey	3.8	1.0	Hong Kong SAR of China	0.8	0.2
Norway	2.9	0.7	Australia	0.6	0.2
Australia	2.3	0.6	Denmark	0.5	0.1
Brazil	1.9	0.5	Cayman Islands	0.4	0.1
Poland	1.6	0.4	Singapore	0.3	0.1
Netherlands Antilles	1.5	0.4	Thailand	0.3	0.1
Mexico	1.5	0.4	Israel	0.3	0.1
Russian Federation	1.3	0.3	Brazil	0.2	0.0
Argentina	1.1	0.3	Turkey	0.2	0.0
Foreign-held securities of German issuers, by economy of holder					
Bond liabilities	798.5	100.0	Equity liabilities	271.4	100.0
Euro area	364.4	45.6	Euro area	106.5	39.2
Luxembourg	104.4	13.1	Luxembourg	34.3	12.7
Netherlands	53.3	6.7	France	19.0	7.0
France	51.3	6.4	Netherlands	14.4	5.3
Italy	46.5	5.8	Italy	12.9	4.8
Belgium	26.0	3.3	Austria	8.0	2.9
Others	82.9	10.4	Others	17.8	6.6
Reserves and international organizations ¹	125.1	15.7	United States	72.3	26.6
Japan	101.2	12.7	United Kingdom	43.6	16.1
United Kingdom	80.8	10.1	Switzerland	23.1	8.5
United States	42.7	5.3	Japan	6.8	2.5
Switzerland	32.1	4.0	Canada	5.3	2.0
Denmark	9.9	1.2	Sweden	4.4	1.6
Norway	7.8	1.0	Denmark	2.1	0.8
Sweden	6.6	0.8	Norway	1.9	0.7
Hong Kong SAR of China	4.6	0.6	Australia	1.7	0.6
Singapore	4.3	0.5	Singapore	0.4	0.1

Source: IMF, Coordinated Portfolio Investment Survey.

¹Foreign exchange reserve holdings are not allocated to individual economies.

Competing for global capital

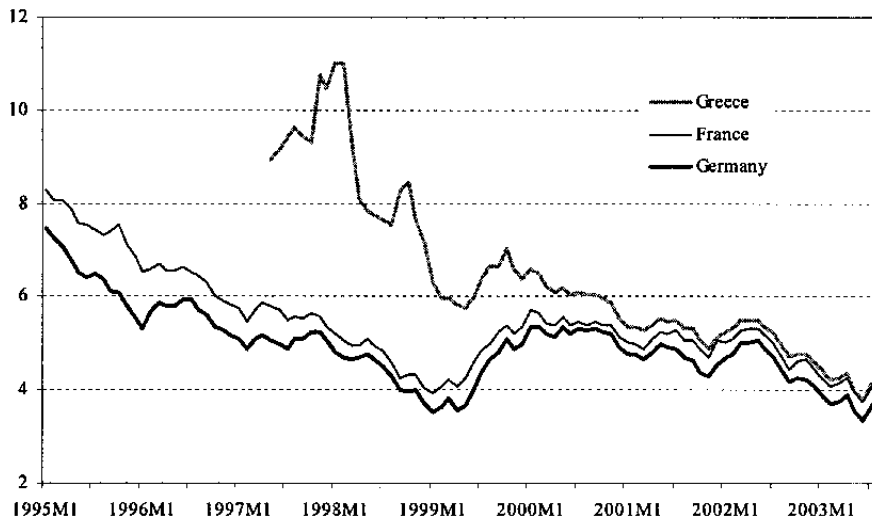
150. **The deepening of global financial markets and the introduction of the euro have increased the supply of foreign capital, but competition on the demand side has also intensified.** Following monetary union, German issuers no longer enjoy the currency advantage formerly bestowed by the deutsche mark. Yield spreads between comparable bonds by German and other European issuers have shrunk substantially, and are expected to narrow further as the remaining obstacles to seamless cross-border trading (mainly of legal, tax-related, and institutional nature) are reduced. For example, although market participants do not see the Germany's benchmark role currently under threat—owing to the deep, liquid, and crisis-tested nature of the Bund market—the Bund premium has continued to decline (Figure III-6). Similarly, the standing of German *Pfandbriefe*—a major financing instrument for the banking sector—has suffered as the market focus is partly shifting to other European issuers that have developed comparable instruments and enjoy higher financial ratings.

Table III-5. Germany: Combined Asset Position of Households and Nonfinancial Enterprises
(as of December 2001; in billions of euros)

	Total	of which: Foreign
Financial assets	5,830	1,648
of which:		
Bonds and notes	588	280
Shares and equity	2,009	930
of which: FDI	...	400
Financial liabilities	4,882	1,039
Net financial assets	946	609

Source: Bundesbank.

Figure III-6. Euro Area: 10-year Government Bond Yields
(In percent)



Source: IMF, International Financial Statistics.

151. **More generally, Frankfurt is subject to strong competition from rival financial centers in a number of European countries.** The standing of Frankfurt as an international financial center is affected by many factors, including the strength of the economy and the regulatory and supervisory environment, but also events such as the collapse of the *Neuer*

Markt, which influence foreign firms' interest in listing on the German market. Attractiveness to foreign investors is beneficial in part because foreign capital could assist the formation of deeper and more liquid local financial markets to finance expansion in the important SME sector.

Liquidity shocks

152. **Following the introduction of the euro, liquidity developments in other European countries now have a more immediate impact on the German market.** The European overnight money market has been fully integrated from the start of monetary union, building on a strong network of pre-existing interbank relationships. The overall market has already become very deep, but there may still be a potential for ripple effects from events in other euro area countries. However, market participants have responded to this potential risk in a number of ways:

- **Many banks have implemented highly proactive liquidity management procedures.** For example, some of the larger banks have combined global financing activities (money market, repos, equity financing) in a centrally-managed group to ensure consistent planning across a wide range of markets. On the basis of medium-term cash flow projections, most banks have secured funds sufficient to cover cash outflows over a period of several weeks even in case access to money markets would be unavailable. Banks also hold ample collateral to raise additional funds in the repo market at short notice if necessary.
- **The increasing collateralization of money market transactions has limited the scope for the transmission of liquidity problems across the European banking systems.** As a result of growing risk awareness and differences in the trading environment of euro area member countries, repo agreements have been gaining strongly in importance, especially for cross-border transactions.
- **Improvements in asset-liability management have further reduced the likelihood of liquidity problems for German market participants.** In recent years, both financial institutions and large corporate treasurers have become more active in hedging financial exposures, particularly interest and exchange rate risk, and the use of derivatives has gained widespread acceptance. As a result, activity levels in the German derivatives markets have skyrocketed, with the German market share in global derivatives trading growing to about 14 percent in 2001, following the UK (35 percent) and the US (17 percent) (BIS, 2002).

C. THE PAST THREE YEARS—A LIVE STRESS TEST

153. **Along with financial systems in other countries, German financial markets and institutions have endured severe stress in the last 2-3 years.** Although not all of the recent difficulties originated abroad, shocks in the international arena have been transmitted to the domestic economy mainly through the first two channels mentioned above. The

consequences for financial institutions and nonfinancial investors have been relatively severe, necessitating public intervention in isolated cases comprising a few smaller banks and one insurance company. More recently, glimpses of the upside of strong global linkages have been evident as global markets have strengthened and bank's operating results have improved.

Credit losses

154. Macroeconomic linkages contributed to the deterioration in domestic credit quality. In both 2001 and 2002, weaker external demand impacted on German export performance and domestic GDP growth. This has contributed to an increase in the number of corporate bankruptcies and a sharp rise in loan loss provisions and credit write-offs (Figure III-7).⁷⁰ Germany's banks have been relatively exposed to this development since there are still few opportunities to hedge against loan losses in the crucial SME sector.⁷¹

155. Internationally active German banks have also suffered severe losses from the deterioration in foreign credit quality. Major credit events included the collapse of a number of highly indebted companies in industrial countries—primarily in the global telecom, media, and energy sector—and, to a smaller extent, the default by Argentina in late 2001. Although banks have not suffered critical losses from any particular incident, many German institutions have been affected by more than one large credit event, contributing to a significant rise in risk provisions (Figure III-8).⁷² Since early 2003, however, credit losses appear to have somewhat abated and the distribution of losses has shifted mostly towards the domestic market.

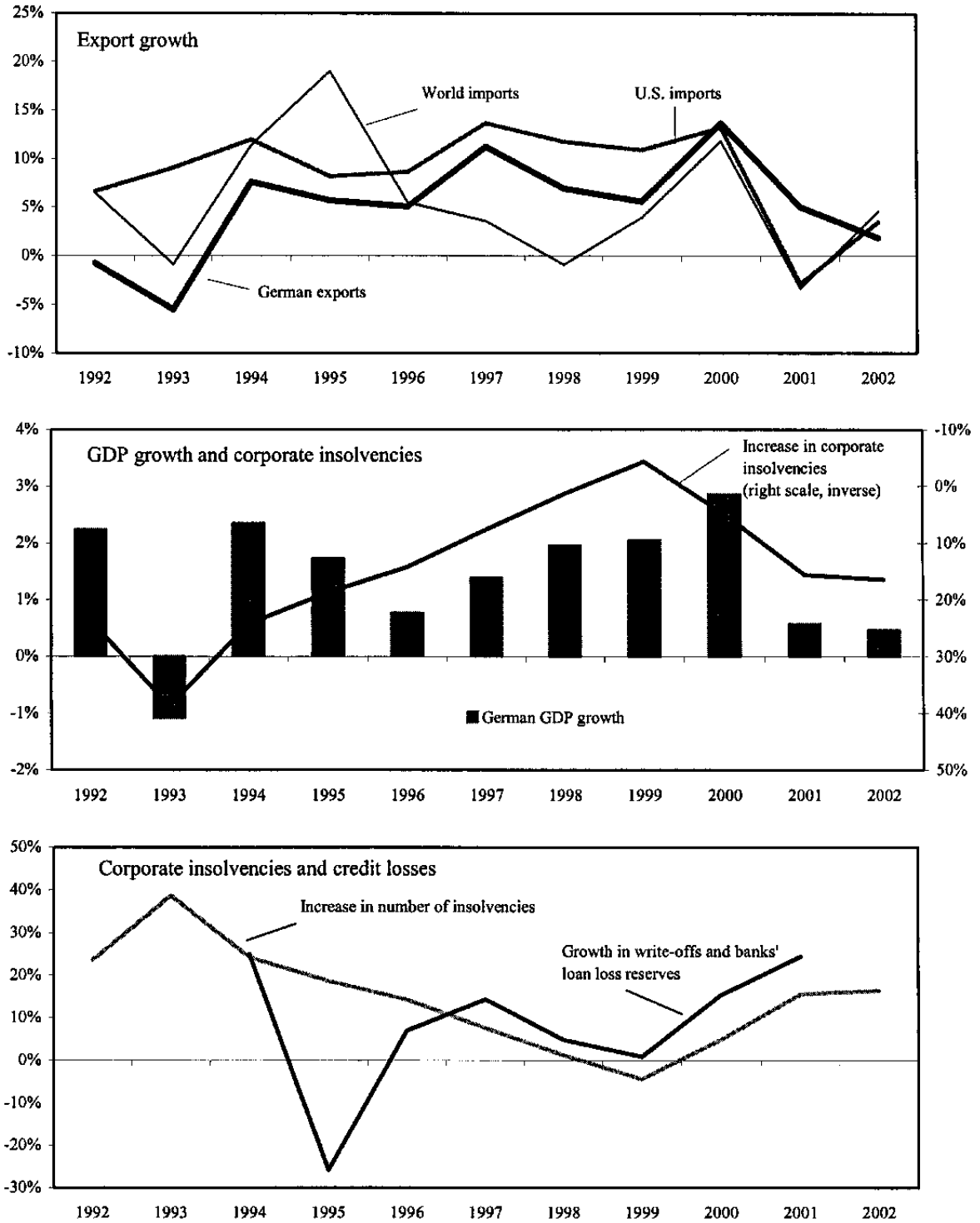
156. Outside the banking sector, foreign credit exposures appear to have been less critical. With insurance companies largely restricted to investing in domestic or euro area bonds—where defaults have been less costly—losses were likely confined to foreign subsidiaries and possibly some reinsurance companies. The Argentina default has affected a large number of German retail investors who are believed to hold as much as \$7 billion worth of Argentine securities. Otherwise, data on mutual fund returns indicate that investments in

⁷⁰ The high level of recent loan loss provisions also includes one-off adjustments stemming from the implementation of advanced risk-management techniques in the run-up to Basel II.

⁷¹ The government has begun to focus on securing adequate credit supply to the SME sector, including by introducing legislation to facilitate true-sale securitization. This is likely to result in an increase of securitization programs with KfW participation. Securitization also remains an option for the savings and cooperative bank sectors, owing to their relatively homogenous clientele.

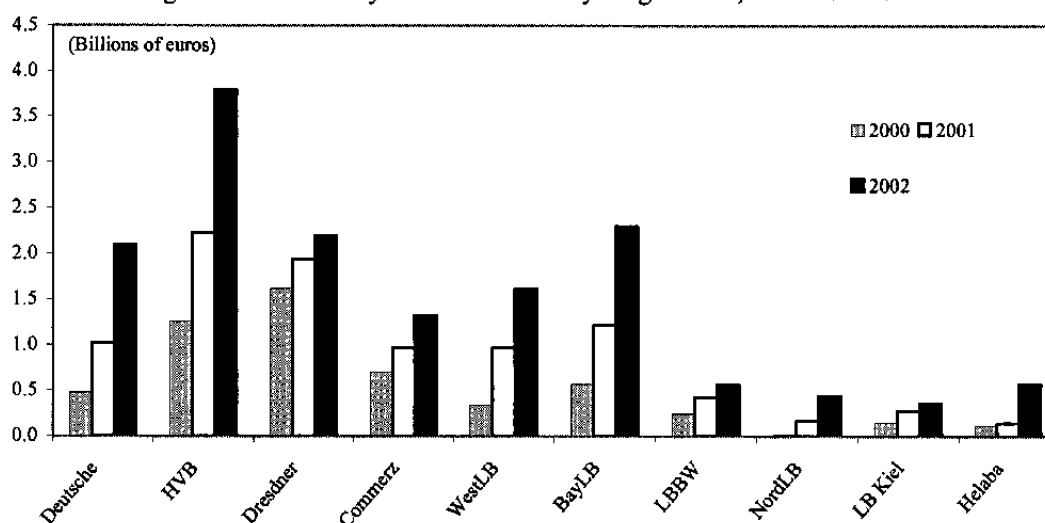
⁷² Press reports suggest that unsecured exposures from the Enron and WorldCom defaults amounted to at least \$50-100 million and \$510 million, respectively. German banks' total exposure to Argentina was \$7¼ billion prior to the country's default, but detailed data on losses has not been made available.

Figure III-7. Germany: Macroeconomic Factors Affecting Credit Quality



Sources: World Economic Outlook; Statistisches Bundesamt; Creditreform; and staff projections.

Figure III- 8. Germany: Risk Provisions by Large Banks, 2000-2002 1/



Source: Company reports.

1/Data are not fully comparable across banks because they are not adjusted for balance sheet volume or different accounting methods.

Table III-6. Germany: Profitability of Bond Mutual Funds, 1997-2002
(In percent unless otherwise stated)

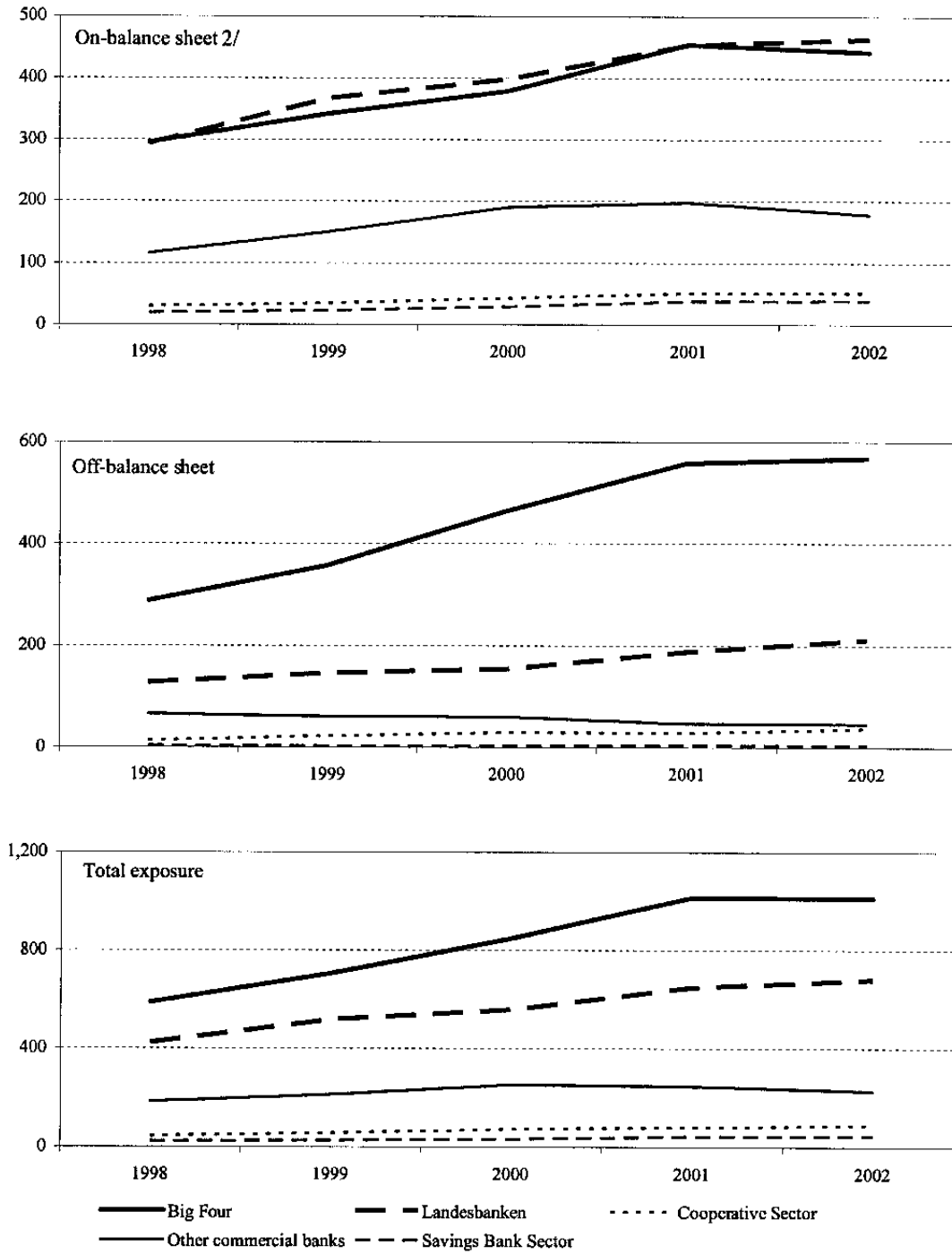
	Funds specializing in		
	Domestic bonds	Euro bonds	International bonds
Number of funds	33	39	44
Mean 5-year return (annual average)	5.13	5.24	5.31
Maximum 5-year return (annual average)	6.88	7.92	8.76
Minimum 5-year return (annual average)	1.61	1.30	1.17
Maximum standard deviation of annual returns	4.52	12.28	16.01
Minimum standard deviation of annual returns	1.53	1.32	3.21

Source: Bundesverband Investment and Asset Management e.V. (BVI)

international bonds have proved to be relatively successful. Although the average return of all bond mutual funds—which are invested about equally in domestic and foreign securities—has dropped to 3 percent in 2002, foreign bond funds appear to have slightly outperformed other bond funds over the past 5 years (Table III-6).

157. **Notwithstanding past losses, foreign credit markets have remained attractive for risk diversification and as an important revenue source.** Until recently, falling interest rates and a steepening yield curve especially in the United States facilitated both valuation and trading gains, and record bond issuance provided opportunities to boost fee income. Traditional lending has also gone up in the U.S. high-end retail business, and European exposures generally are increasing as a result of monetary union. The foreign credit business of German banks has therefore not been scaled back dramatically in 2002 (Figure III-9),

Figure III-9. Germany: Foreign Exposures of Major Banking Groups 1/
(In billions of euros)



Source: Bundesbank, Evidenzzentrale für Millionenkredite.

1/ Based on reports of credit exposures of €1.5 million or more pursuant to Section 14 of the Banking Act. Data for 2002 reflect end-September levels.

2/ Assets covered under Section 1 of the Banking Act.

although loans to some individual markets (e.g., Japan, Russia and Argentina) have been reduced.⁷³

Equity losses

158. **The recent stock market recovery has limited the damage from the collapse of the equity bubble, but financial institutions as well as nonfinancial investors have had to cope with substantial losses on equity investments:**

- **The declining value of banks' stock holdings led to a significant drop in hidden reserves.** At the trough of the market, many banks' equity reserves were reported to have fallen to relatively small levels. Analyst estimates also suggest that a number of institutions had accumulated hidden losses as of end-2002, including among the large commercial banks. Reserves have been partly recovered over the course of the past months, but provide a much less comfortable cushion compared to only a few years ago.
- **Possibly more damaging has been the sharp decline in equity-related revenues.** Many of the larger banks had expanded into global investment banking in the late 1990s, thereby incurring significant start-up costs. The sharp drop in underwriting and advisory fees has hurt this business, and in many cases the resulting losses have offset most if not all of the profits from traditional banking activities.
- **Insurance companies also suffered large losses, partly because they started to build up stock portfolios late in the cycle.** Insurers' hidden reserves of €150-200 billion are estimated to have turned into liabilities of around €20-50 billion over the past three years (Fitch Ratings, 2003a,b), equivalent to up to 5 percent of their €900 billion investment portfolio.
The equity portfolios of reinsurance companies tend to be more geographically diverse, corresponding to their global risk exposure, and are likely to have suffered somewhat less as a result.
- **The impact on German households has been more limited.** As of end-2001, households were estimated to hold €900 billion in shares and equity investments, down by €70 billion (or 7 percent) during the year

Table III-7. Germany: Nonfinancial Sector Balance Sheets, 2000-01
(In billions of euro)

	Households		Nonfin. corporates	
	2000	2001	2000	2001
Total assets	9.1	...	...	...
Financial assets	3.6	3.7	2.1	2.2
Shares and equity	1.0	0.9	1.2	1.1
Bonds				
Financial liabilities	1.5	1.5	3.4	3.4
Net worth	7.6	...	...	...
Net financial assets	2.1	2.1	-1.3	-1.2

Source: Bundesbank; OECD.

⁷³ A reduction in claims on Luxembourg appears to be mostly driven by changes in the German tax environment as well as stepped-up collection efforts by the tax administration.

(Table III-7).⁷⁴ However, losses are likely to have picked up in 2002. For example, the value of shares held by mutual funds—three quarters of which are invested in foreign equities—declined to €200 billion by end-2002, compared to €310 billion in 2001 (Bundesbank, 2003). Nevertheless, the impact on household balance sheets appears to have been relatively small, partly because equity holdings are not widespread and because losses were offset by rising bond valuations. Net inflows into equity mutual funds remained small but positive in recent years, and the number of retail investors declined only marginally in 2002 (DAI, 2002). As a result, most retail investors are likely to have benefited from the strong rebound in the *Dax* in mid-2003.

- **Direct losses have also been moderate in the corporate sector, but financial conditions have nevertheless tightened considerably.** First, the value of participations and cross-shareholdings has declined, reducing hidden reserves. Second, listed firms' ability to raise fresh capital on the markets has been affected by low stock prices, hindering corporate restructuring through mergers and acquisitions or other means. Third, although German corporate pension schemes are usually funded on a pay-as-you-go basis—and thus less exposed to short-term market fluctuations than funded pension schemes—some companies with large unfunded liabilities have come under renewed scrutiny from rating agencies. One agency announced that it would classify pension liabilities similar to ordinary debt in the future, which has already affected one large German company and could affect ratings in the future.

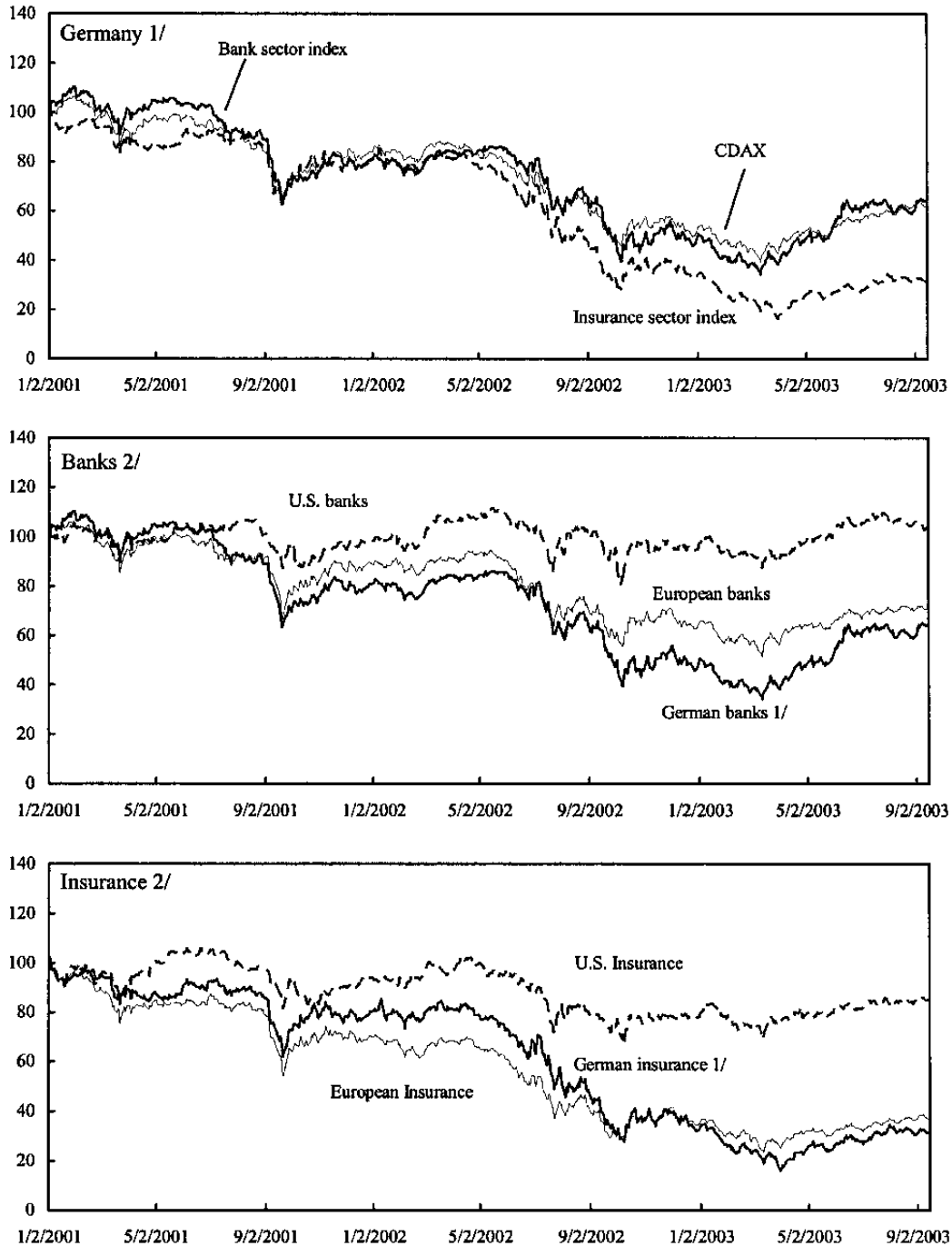
Capital flows and market confidence

159. **As a result of equity losses and weak operating results among the large banks and insurance companies, German financial stocks underperformed European competitors for much of the past two years.** Owing to the relatively high equity exposure of German financial institutions, investor concerns were particularly pronounced when global equity markets dropped sharply in the fall of 2002. As a result, risk premia on securities issued by German banks and insurance companies increased temporarily, but have recently returned to levels prevailing in early 2002 (Figures III-10, III-11). The ratings outlook has also stabilized, but most internationally active institutions (as well as many of their foreign competitors) suffered downgrades, including the two largest insurance groups.

160. **Three of the Big Four commercial banks were particularly affected by volatile market conditions in late 2002.** Market sentiment turned sharply negative in October 2002, when a leaked email from an international securities house led to (unsubstantiated) rumors

⁷⁴ These data include shares in mutual funds—which are partly invested in other financial assets—as well as equity participations that are not marked-to-market (Bundesbank 2002).

Figure III-10. Germany: Relative Stock Market Performance of Financial Institutions, 2001-2003 (January 2, 2001 = 100)

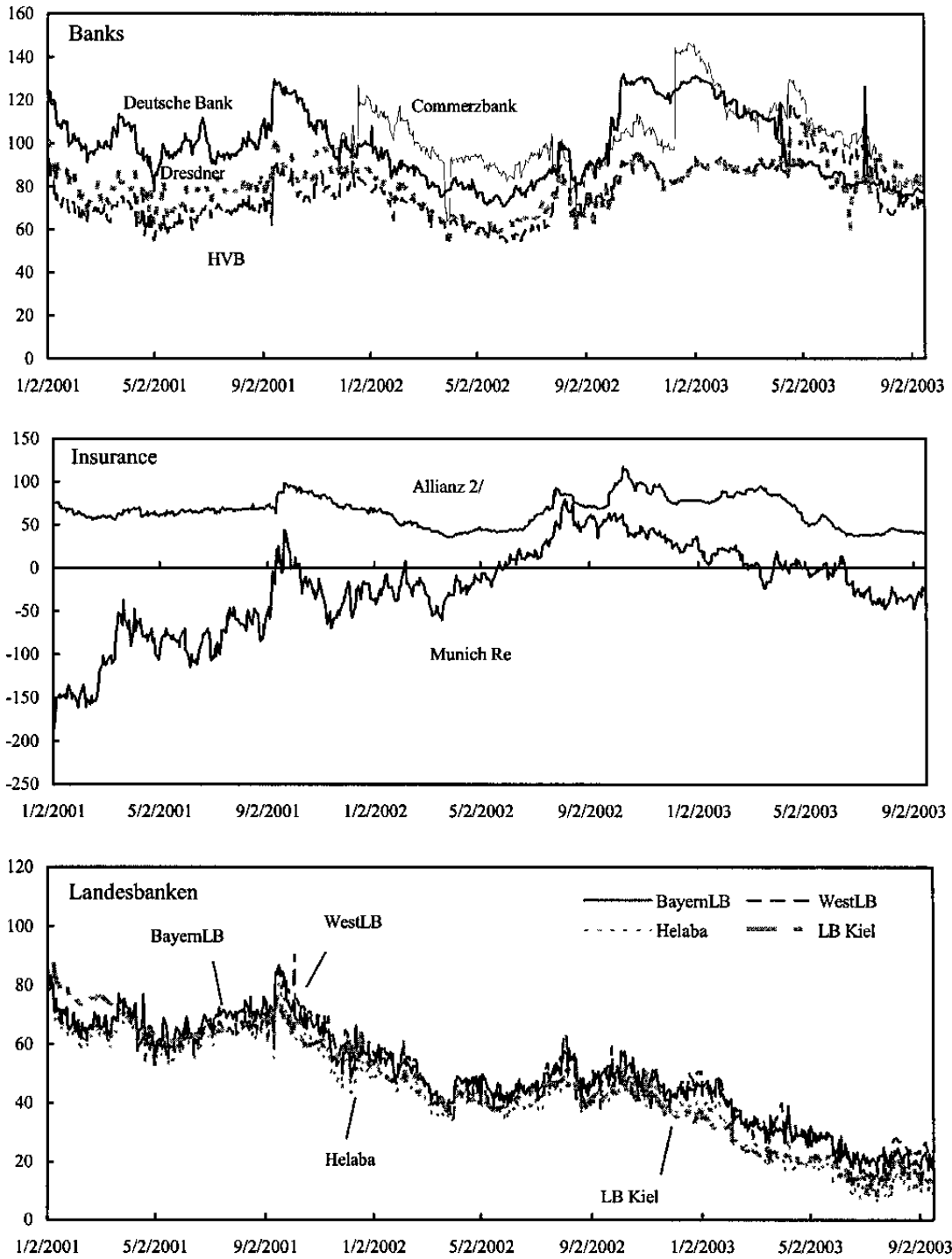


Source: Bloomberg L.P.

1/ All German indices from CDAX. The index for German banks is heavily dominated by the market capitalization of Deutsche Bank AG (about 66%), and therefore not necessarily representative of the German banking market.

2/ For United States, Standard & Poor's 500; for Germany, CDAX; and for Europe, Bloomberg European 500.

Figure III-11. Germany: Bond Yield Spreads for Major Financial Institutions, 2001-2003 1/ (In basis points)

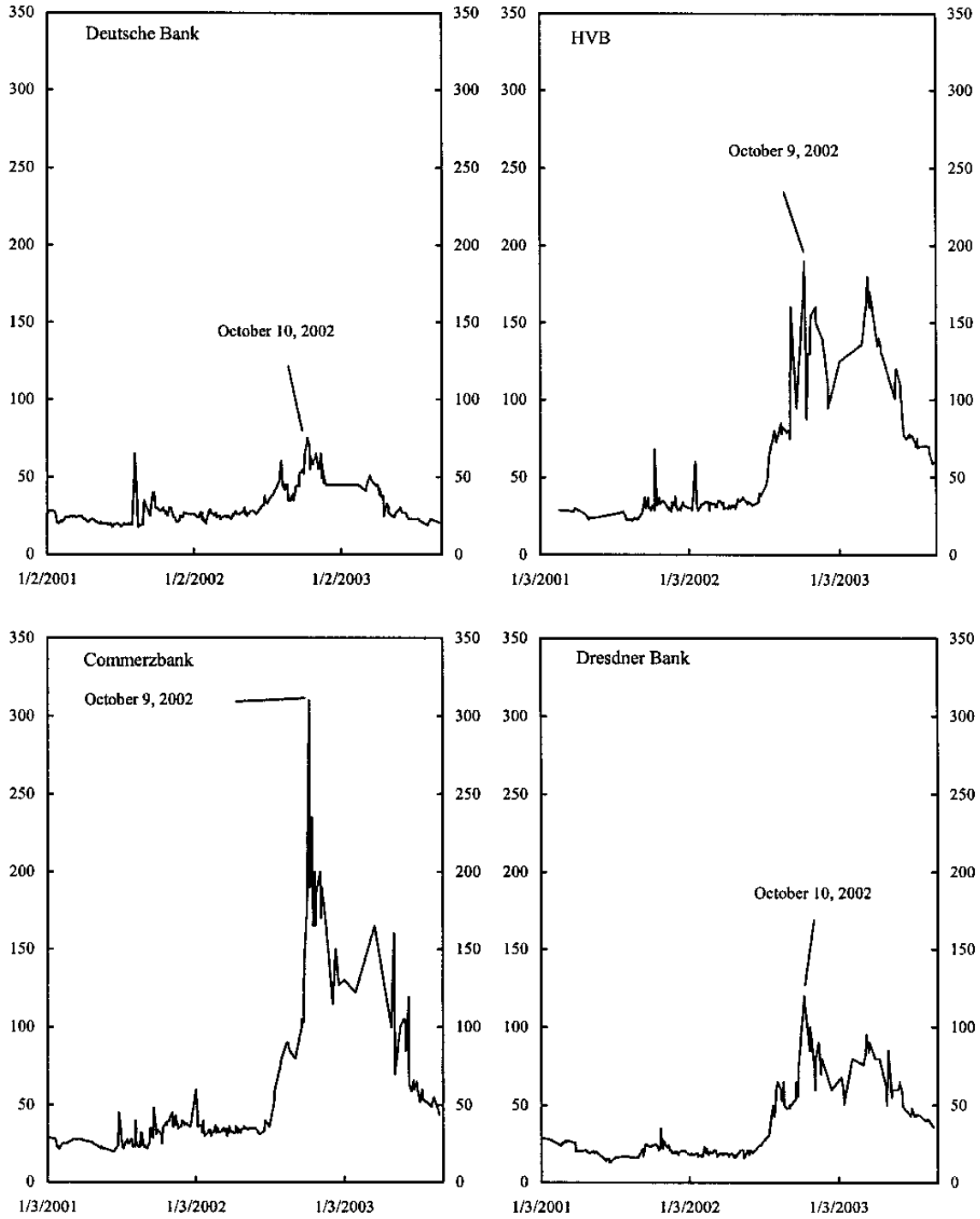


Source: Bloomberg L.P.

1/ Spread between yields on five-year bonds and five-year bunds.

2/ Allianz Finance.

Figure III-12. Germany: Credit Default Spreads for the Big Four, 2001-2003 1/
(In basis points)



Source: CreditTrade.

1/ Spreads on credit default swap (CDS) on euro-denominated senior debts with five-year maturities. Starting June 2003, the spreads are for approximately five-year maturities.

about a liquidity problem of one of the large commercial banks. As a result, spreads on credit default swaps (CDS) on three of the Big Four spiked upward for several days, requiring a reassuring statement by the supervisory authorities to reduce market tension (Figure III-12). This episode underscored the reputation risks inherent in globally interconnected markets, especially in the credit derivatives market, which tends to reflect changes in sentiment more quickly than other markets and may be more prone to overshooting. CDS spreads have since returned to more moderate levels, owing to ongoing restructuring measures and an improving business environment.

161. **Net capital export increased in 2002, owing to rising outflows of resident capital.** However, net investment by foreigners in domestic stocks and bonds has been positive in both 2001 and 2002, notwithstanding the underperformance of stocks during that period (Table III-8). Moreover, spreads on bonds issued by domestic financial institutions have been relatively stable over the past two years (see Figure III-11). On the other hand, foreign equity purchases and bank loans appear to have softened in 2002, and the increase in the share of domestic bonds held by foreign residents has slowed considerably in the past two years (see Table III-3).

Table III-8: Germany: Cross-Border Capital Flows, 2000-02
(In billions of euros)

	<u>Net foreign investment by residents</u>			<u>Net domestic investment by foreigners</u>		
	2000	2001	2002	2000	2001	2002
Total capital flows	350.9	283.5	255.4	387.5	262.2	169.1
Direct investment	54.0	50.3	26.1	211.8	37.9	40.4
Securities and derivatives	212.7	123.3	70.0	49.1	155.1	98.3
<i>of which: Equities</i>	104.9	15.6	5.3	-34.5	88.6	16.8
<i>of which: Bonds</i>	72.8	95.1	50.8	69.2	80.2	71.5
Loans	84.2	109.9	159.3	126.6	69.2	30.4

Source: Bundesbank, Balance of Payments Statistics.

D. IMPLICATIONS FOR LARGE FINANCIAL INSTITUTIONS

162. **The large internationally active banks and insurance groups form the key link between international and domestic financial markets.** These institutions were on the cutting edge of the recent strains in international markets. Nevertheless, the domestic banking system was insulated to some extent because two groups of retail institutions—the savings and cooperative banks—account for the bulk of German bank deposits and have only small foreign exposures.

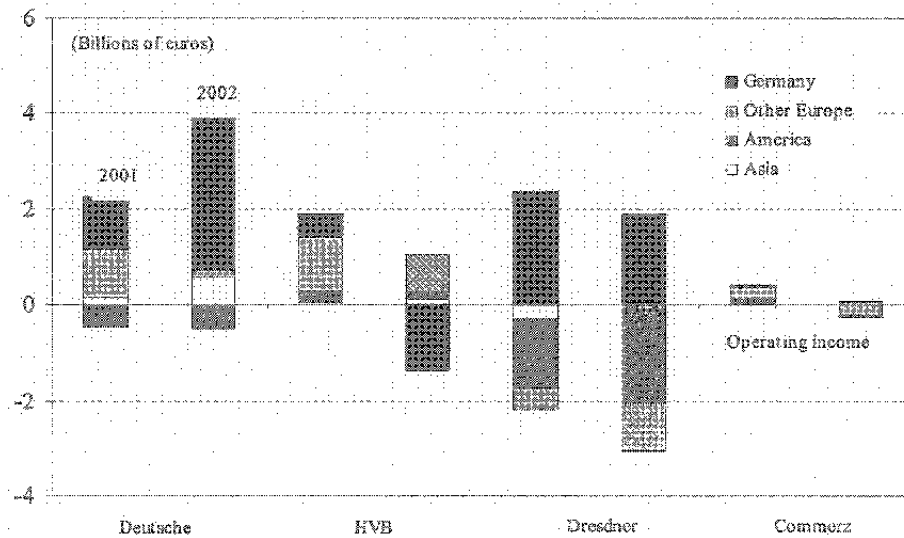
The Big Four

163. **As “flagships” of the German financial system, the large commercial banks (Big Four) play an important role in the intermediation of foreign and domestic capital flows.** On the one hand, three of the Big Four generate 40 percent or more of gross revenues outside Germany, including traditional lending as well as investment banking operations. On the other hand, with their relatively small deposit base, the banks depend to a large extent on

money markets for funding, and their extensive securities-related service operations also make them part of the backbone of the domestic bond and equity markets.⁷⁵ Moreover, they serve as main banking service provider (*Hausbank*) for larger German corporates and play a particularly important role in funding and advising on international business activities. The Big Four are linked to other private banks through their participation in the private deposit insurance system run by the association of Germany's private commercial banks (BdB). Similarly, insurance companies in particular are large bank bondholders, creating important financial linkages to other parts of the financial system.

164. Declining profits and concerns about strategic overreach have prompted a withdrawal from some international operations. Profit contributions from foreign operations generally declined in 2002, and in some cases turned negative (Figure III-13). Business conditions, especially in investment banking deteriorated sharply, and most German banks have failed to generate sufficient revenues to cover the inherently large fixed costs. Moreover, most of the Big Four entered this business late and had not gained a market share large enough to ensure sustained profitability even under better market conditions. Therefore, the banks have been facing the choice of either capping losses by exiting the business or maintaining expensive staff and infrastructure in the hope of a sustained market recovery. As a result, several are scaling back their investment banking business considerably. They are also likely to wind down parts of their global wholesale lending, which in many instances has served as a loss leader for acquiring more lucrative fee business.

Figure III-13. Germany: Big Four: Income Before Taxes, 2001-02



Source: Company reports.

⁷⁵ As a result of monetary union, the term “domestic” increasingly includes the rest of the euro area.

The Landesbanken

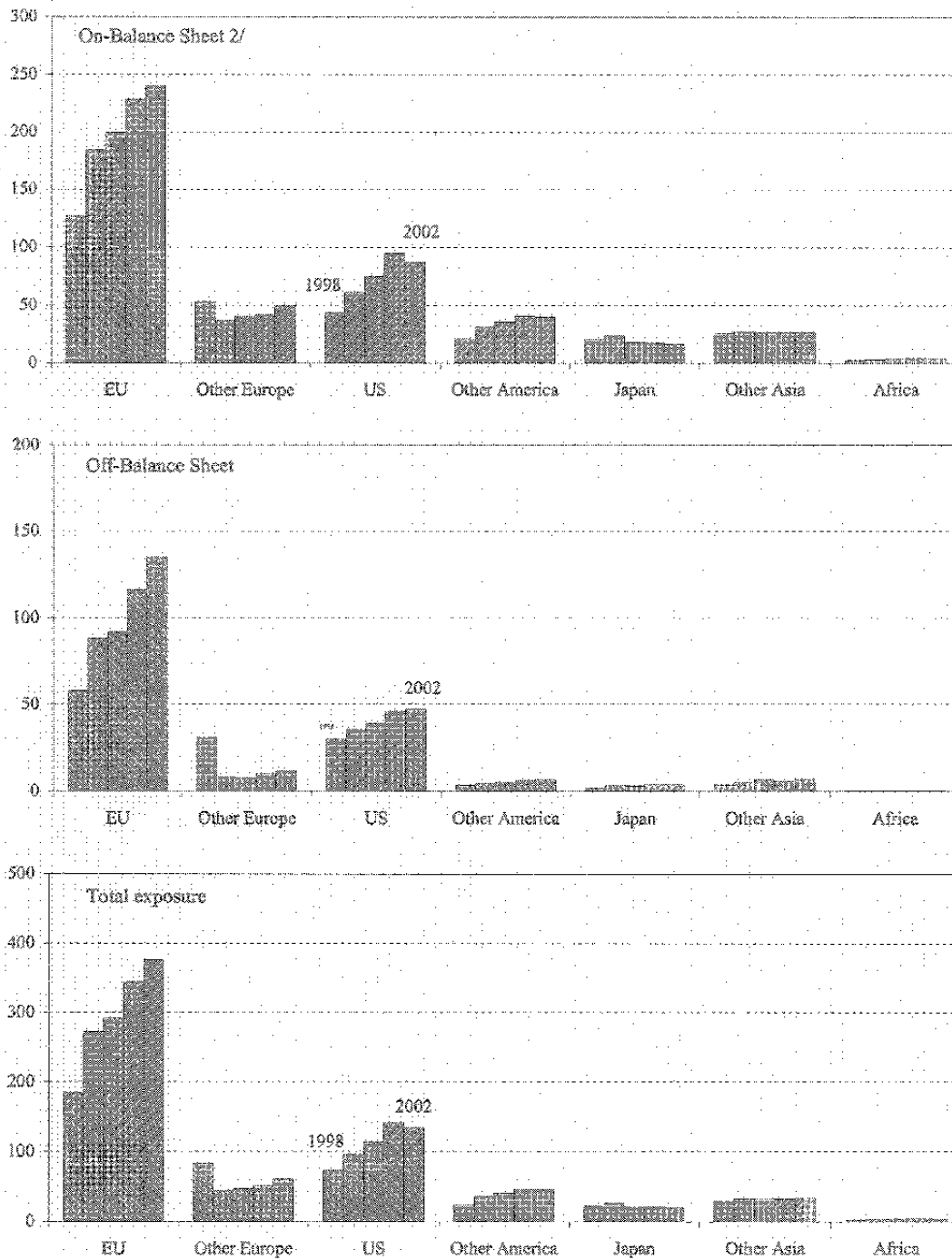
165. **Although Landesbanken have traditionally operated closer to home than the Big Four, most of the larger institutions generate 40 percent of revenues or more abroad.** Reflecting their relatively weak retail base, many banks have sought to boost earnings by entering international wholesale markets in recent years, and a few have attempted to follow the Big Four in attempting to gain a foothold in investment banking. On the domestic front, the Landesbanken are the savings banks' major counterpart in the interbank and securities markets, and the existing ownership structure also ties the two groups of institutions closely together.⁷⁶ Landesbanken therefore play an important role for regional economies—with especially small- and medium-sized enterprises the savings' banks main clientele—and financial difficulties at a Landesbank could potentially translate into a significant burden for regional fiscal policy.

166. **The Landesbanken also face a major strategic challenge.** The institutions have so far benefited from lower funding costs than most competitors, owing to triple-A ratings derived from their semi-public status. Following an agreement between the German government and the European Commission, these guarantees are set to gradually expire after 2005, removing the competitive edge of Landesbanken in the global wholesale markets. As a result, new business models have begun to emerge in the Landesbank sector, ranging from vertical integration with savings banks in Baden-Württemberg toward horizontal mergers in the northern part of Germany. In addition, all banks have engaged in substantial cost-cutting exercises and adjusted business lines around core competencies. The immediate objective for the banks is to achieve profitability levels consistent with a credit rating that is sufficient to ensure the banks' long-term financial viability.

167. **As a result, most banks are refocusing their international activities.** Some of the banks are in the process of shrinking back toward their original role as wholesale bank for the regional savings banks, but in many cases a considerable presence is likely to remain at least in neighboring countries—motivated by the need to earn higher risk-adjusted returns than in the domestic market (Figure III-14). A number of banks also remain active in nontraditional banking businesses, such as global project finance, principal finance and equity participations. The Landesbanken also include some major players in the aircraft and ship leasing business, which has been profitable for many years but recently suffered from a weak world economy, fear of terrorism, and SARS. Finally, some of the institutions have been named in recent surveys as belonging to a small group of European regional banks who have significantly expanded their engagement in credit derivatives markets in recent years (Fitch Ratings, 2003c). However, this trend appears to have slowed in 2002, and indications

⁷⁶ For example, 85 percent of Helaba are owned by the savings banks association of Hesse and Thuringia, as are 50 percent of BayernLB and Landesbank Rheinland-Pfalz by their respective organizations. Similar structures exist for other Landesbanken.

Figure III-14. Germany: Foreign Exposures of Landesbanken, 1998-2002 1/

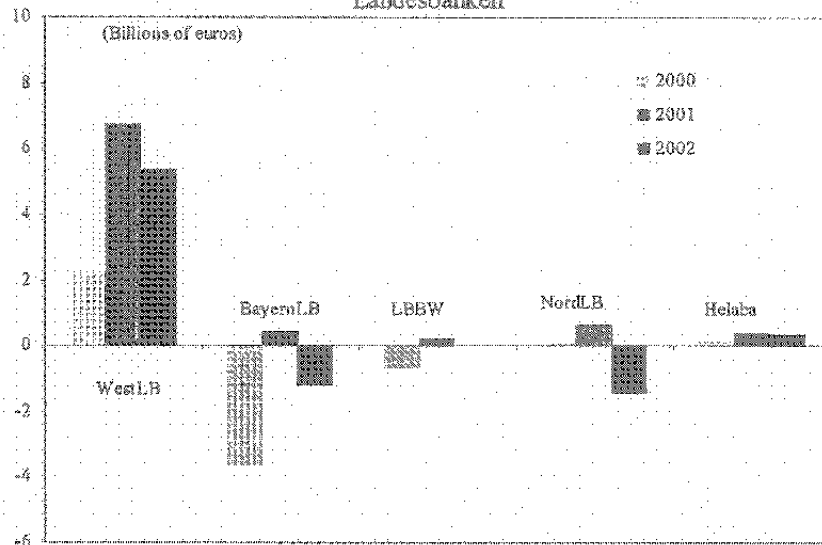


Source: Bundesbank, Evidenzzentrale für Millionenkredite.

1/ Based on reports of credit exposures of €1.5 million or more pursuant to Section 14 of the Banking Act. Data for 2002 reflect end-September levels.

2/ Assets covered under Section 1 of the Banking Act.

Figure III-15. Germany: Net Credit Risk Protection Sold By Landesbanken



Source: Company reports.

are that most banks are offering credit protection mainly in order to diversify existing credit portfolios without taking on significant additional risk (Figure III-15).⁷⁷

Insurance and reinsurance

168. The international exposure of German insurance companies relates both to their underwriting business and securities investments. For example, the two largest insurers earned over 50 percent of their premium income outside Germany in 2002, and more than 40 percent of their investment portfolio was placed abroad. With around one fifth of the world market, the reinsurance companies are particularly exposed to global insurance events, and recent losses in the international market could accumulate to some extent in Germany as a result.⁷⁸

⁷⁷ Credit derivatives are typically restricted to high-quality names and mostly kept in the banking book. Market risks from credit derivatives held in the trading book still remain trivial, especially when compared to interest rate derivative markets where the Landesbanken are significantly more active. As CDS markets have become more liquid, credit derivatives offer the additional advantage that they can be sold relatively quickly and thus allow banks to adjust their credit portfolios more rapidly and more cheaply than if they held traditional loans.

⁷⁸ Recent concerns relate to claims from terrorist incidents, environmental disasters, asbestos, and toxic mold. For example, market participants estimate that about 70 percent of the World Trade Center loss will end up with German and Swiss insurance and reinsurance companies.

169. **Owing to their cross-linkages with other financial institutions, insurance companies form a key link between international and domestic markets.** For one, there are still considerable cross-ownership linkages between German reinsurance and insurance companies (three of the four major reinsurers have a substantial primary insurance business), and Germany has the highest rate of reinsurance acceptance (as a percent of total gross premiums) of any OECD country. Existing bancassurance relationships are to some extent being reduced, but some of the Big Four are still closely connected with major insurance groups.⁷⁹ Finally, once insurance companies are forced to replenish liquidity, asset sales could contribute to downward pressure in asset markets. This was observed recently in the equity market, forcing the insurance regulator to relax accounting rules, but has also been reported in the domestic real estate markets, where insurance companies hold large market shares (Table III-9).

	Total	Market size
Bonds and other fixed-income securities	336	2,349 ¹
Equity and other variable-yield securities	226	1,046 ²
Participations and others	287	...

Source: GDV (2003); Bundesbank.
¹ Outstanding bonds issued by domestic entities.
² Value of outstanding shares of domestic companies (excluding insurance companies) at market price.

170. **In contrast to large banks, however, insurance companies have not cut back significantly on their international business.** The relatively strong international competitive position of a number of German insurers implies that they could benefit from a hardening of premiums in the P&C and reinsurance sectors, and even in life insurance profit opportunities may be stronger abroad than in the domestic market, where guaranteed minimum returns continue to depress yields. By contrast, life insurance companies that have relied mostly on the German market face considerable financial challenges (Fitch Ratings 2003a,b).

E. CONCLUSIONS

171. **The experience of the past years underscores the extent to which developments abroad can affect the German financial system.** International operations are an important revenue source and provide options for risk diversification for German financial institutions. However, shocks in foreign markets were quickly transmitted into the domestic arena in recent years, and most banks and insurance companies had to dip deeply into their reserves to continue to pay dividends and maintain regulatory capital. On the other hand, the relatively segmented nature of the German financial system (with strict sectoral borders between

⁷⁹ Some examples of insurance companies owning banks include Allianz: Dresdner Bank (100 percent) and Deutsche Bank (3 percent); and Munich Re: HVB (26 percent) and Commerzbank (10 percent). Vice versa, Deutsche Bank owns shares in Allianz (3 percent) and a 35 percent share of Gerling NMC Credit and Finance AG, recently renamed Altradius; HVB partly owns Allianz (5 percent) and Munich Re (13 percent); and Commerzbank, Munich Re (1.5 percent).

private, savings, and cooperative banks) implies that volatility in one area of the financial system does not necessarily translate into other sectors. As a result, investor concerns concentrated on only a few institutions, and increases in bond and equity risk premia were both limited and temporary.

172. Although financial conditions have improved recently, some institutions remain susceptible to external shocks while they continue to adapt their business models. Only a few of the larger banks and insurance companies have reached a size and position in international markets that enables them to overcome weaknesses in their domestic business. For many commercial banks, the choice is between competing on thin margins in the familiar domestic market, or seeking higher margins in the international arena where risks may be larger and the competitive advantage smaller. Notwithstanding progress in reducing operating costs and improving risk management, this fundamental dilemma is unlikely to be resolved before domestic restructuring creates room for margins to increase. For several Landesbanken with high exposures in foreign markets, the restructuring demands are particularly acute given the phasing out of state guarantees.

173. A stronger domestic economy remains key in protecting the financial system. The U.S. recovery and related upswing in global equity markets have provided more breathing room for German financial institutions, bolstering financial reserves and facilitating ongoing restructuring efforts. However, should the anticipated global recovery fail to materialize, the combined effect of slowing revenues, rising loan defaults, and equity losses—both in the international and domestic markets—could again impact on profitability and market confidence. Reducing this risk partly depends on the speed and depth of ongoing restructuring efforts as well as lifting domestic growth prospects.

174. European monetary union has removed foreign currency risk, but also exposed market participants to a more competitive environment. The changing financial landscape presents difficulties especially for institutions that depend on wholesale business and have yet to find profitable market niches. Similarly, domestic debt issuers may find it more expensive to raise funds in the market as the former advantage imparted by issuing in Europe's strongest currency is now being shared with competitors in the euro area.

175. Finally, the possibility of a systemic disruption in global financial markets continues to require constant vigilance. Given the complex web of interactions between internationally active banks, disruptions in one corner of the global financial markets have the potential to spread quickly, and Germany has not been immune from past disturbances (Bundesbank, 2000). While work is ongoing to minimize any vulnerabilities, both on the national and supranational level, the experience of recent years has shown that robust balance sheets of financial institutions remain the first line of defense against system-wide shocks.

References

- BIS (Bank for International Settlements), 2002, "Triennial Central Bank Survey: Foreign Exchange and Derivatives Market Activity in 2001," Basel.
- Bundesbank (Deutsche Bundesbank), 2000, "The Impact of Financial Market Crises on the German Securities Markets," *Monthly Report*, April.
- , 2002, *Financial Accounts for Germany, 1991 to 2001*, Frankfurt.
- , 2003, *Capital Market Statistics*, various issues.
- Brooks, R., and M. Del Negro, 2002, "The Rise in Co movement Across National Stock Markets: Market Integration or Global Bubble?," IMF Working Paper 02/147 (Washington: International Monetary Fund).
- Büschgen, H.E., 1983, "Zeitgeschichtliche Problemfelder des Bankwesens in der Bundesrepublik Deutschland," in: G. Aschhoff and others (eds.), *Deutsche Bankengeschichte (vol. 3)*, Institut für bankhistorische Forschung, Frankfurt a.M.: Fritz Knapp.
- Catao, L.A., and A. Timmerman, 2003, "Country and Industry Dynamics in Stock Returns," IMF Working Paper 03/52 (Washington: International Monetary Fund).
- DAI (Deutsches Aktieninstitut), 2002, *DAI Factbook 2002*, Frankfurt a.M.
- Fitch Ratings, 2003a, "German Life Insurers: Insurers May be Forced to Write off Billions," Special Report, March 18.
- , 2003b, "German Life Insurers: No End to the Difficult Situation in Sight— Solvency II Far Away," Special Report, September 30.
- , 2003c, "Global Credit Derivatives: Risk Management or Risk?," Special Report, March 10.
- GDV (Gesamtverband der Deutschen Versicherungswirtschaft, German Insurance Association), 2003, *Statistical Yearbook of German Insurance: 2002*, Berlin.
- Helbling, T.F., and T.A. Bayoumi, 2003, "Are They All in the Same Boat? The 2000-2001 Growth Slowdown and the G-7 Business Cycle Linkages," IMF Working Paper 03/46 (Washington: International Monetary Fund).
- Huber, L., 1983, "Neue Risiken im Bankgeschäft," in: Landesbank Rheinland-Pfalz-Girozentrale (ed.), *Banken: Erfahrungen und Lehren aus einem Vierteljahrhundert, 1958-1983*, Frankfurt a.M.: Fritz Knapp.
- Kose, M.A., C. Otrok, and C.H. Whiteman, 2003, "International Business Cycles: World, Region, and Country Specific Factors", *American Economic Review*, vol. 93, no. 4, 1216-39.
- Lane, P., and G.M. Milesi-Ferretti, 2003, "International Financial Integration," IMF Working Paper 03/86 (Washington: International Monetary Fund).

Login, F., and B. Solnik, 2001, "Extreme Correlation of International Equity Markets",
Journal of Finance, 56, 649-76.

OECD, 2002, *Insurance Statistics Yearbook, 1993-2000*, Paris.

Standard and Poor's, 2002, "Global Reinsurance Highlights: Gearing Up for 2003."
Swiss Re, 2002, *Sigma*, No. 6/2002.