OeNB

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The OeNB's biannual Financial Stability Report provides regular analyses of Austrian and international developments with an impact on financial stability. In addition, it includes studies offering in-depth insights into specific topics related to financial stability.

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Editorial close: May 19, 2004

Executive Summary

Global Recovery Supports Revival of Financial Markets

World economic conditions have clearly improved since the summer of 2003. Economic growth accelerated noticeably, above all in the U.S.A. and in Asia, whereas the pace of business activity was comparatively slower in the euro area. The improved outlook for growth has partly lessened macroeconomic and microeconomic risk in international financial markets; at the same time, investors were more willing to take on risks, which resulted in a quest for higher yields. Even in the face of the recovery, interest rates persisted at very low levels, so that investors increasingly sought out riskier markets and shifted large portions of their holdings from the money market into stocks.

Stock markets rallied worldwide, and unlike in the 1990s, prices also surged on the Vienna stock market. The ATX posted gains in 2003 that were in line with those of important international stock price indices, and unlike most other indices continued to climb in the initial months of 2004. Even after the upturn of prices on the Vienna stock exchange, the valuation of the companies quoted was normal compared to that on other markets.

The momentum on the stock market has come to have a considerable impact on Austrian households' financial wealth. The stock price gains in 2003 restored roughly a third of the valuation losses that households had suffered owing to stock price declines in the period from 2000 to 2002. In the future capital markets will become more important for household investment, especially because of the growing importance of occupational and personal pension plans.

Less risk aversion in international markets and improved loan quality as a result of higher corporate profits caused the spreads between corporate bonds and government bonds with comparable maturities to narrow substantially. The decline in the spreads of emerging market bonds also bears witness to a greater risk tolerance.

Central and Eastern European Risk Position Improved

In a number of Central and Eastern European countries, e.g. Bulgaria and Romania, ongoing structural reform and further progress with the EU accession process translated into better ratings and shrinking spreads for government eurobonds. In other countries, though, notably Poland, Hungary and the Czech Republic, burgeoning inflation and growing uncertainty about the fiscal policy course and exchange rate developments as well as marked increases in key interest rates caused spreads for national currency-denominated government bonds to widen against benchmark eurobonds in the course of 2003.

Central European banks posted high average returns on equity again in 2003. For Austrian banks, Central and Eastern Europe remains a growth market with a high potential for profit. The big banking groups continued to expand their business and their credit exposure in this region in 2003. Banks' profits in this region again represented a large portion of the consolidated result of the major Austrian banking groups.

Corporate and Household Loan Growth Slowed

The recovery was slow to gain a foothold in the euro area, which also put a damper on Austrian economic

growth. The hesitant business activity was also reflected by sluggish lending to households and companies despite favorable financing conditions in a low-interest environment and against the background of financial market recovery in 2003. The upswing in stock prices, for example, reduced the cost of equity capital for enterprises. Issuing activity on the Vienna stock exchange in 2003 far outpaced the long-term average. From September 2002 onward, however, corporate borrowing from banks had stayed below the year-earlier values and did not begin to expand again until the first few months of 2004.

In addition, companies raised considerably more capital abroad than in Austria. Most of the borrowing consisted of intracompany loans extended by parent companies headquartered abroad. In parallel, bonds – these were mainly purchased by nonresident investors – became more important as a source of corporate finance in 2003. Equities, too, were acquired largely by nonresidents. These financing developments diversify credit risk out of the banking system and even beyond the domestic financial sector.

While households' propensity to borrow lost considerable momentum in 2003, households continued to demonstrate a lively interest in foreign currency loans in the second half of 2003. At the same time, households replaced nearly all Japanese yen-de-nominated loans by credits in Swiss francs, which no doubt fostered stability because of the latter currency's significantly lower volatility against the euro. However, Swiss franc-denominated funding remains subject to a nonnegligible exchange rate risk.

Banks' Risk-Bearing Capacity Improved

Banks succeeded in boosting profits perceptibly in 2003. The profit components that are linked to stock market developments posted particularly robust gains. At the same time, operating expenses sank below the year-earlier value in 2003, a first since the introduction of the quarterly reporting framework. Both personnel expenditure and other administrative expenditure were rolled back, and staff capacity was downsized. These results indicate that the streamlining measures implemented in recent years have begun to take effect.

Banks' perceptibly stronger equity capital base boosted their risk-bearing capacity in 2003. The results of stress tests support the assessment that the Austrian banking sector as a whole is stable and resistant to external shocks. The International Monetary Fund also confirmed the stability of the Austrian financial sector, in particular the banking sector, in the Financial Sector Assessment Program it conducted with the consent of the Austrian authorities.

Reports

Economic Developments and Financial Markets
Strong Global Upswing Loses Momentum in Euro Area

After accelerating significantly in 2003, global economic activity continued its uptrend at the beginning of 2004. While the recovery was substantial in the U.S.A., Asia and Latin America, euro area growth remained only moderate.

The upturn gained momentum particularly in the U.S.A. on the back of strong private consumption and investment. Consumer spending has been fueled by tax cuts as well as low interest rates, which households have taken advantage of to refinance their mortgage loans. In the third and fourth quarters of 2003, U.S. growth accelerated substantially, coming to 3.1% for the year 2003. Lower interest rates and a much improved industrial confidence have ushered in a turnaround in corporate investment. With productivity growth steady and strong, the uptrend only translated into higher employment rates in the first quarter of 2004. The medium-term economic outlook for the U.S.A. is positive. According to the IMF's spring forecast, real GDP growth is expected to come to 4.6% in 2004 and 3.9% in 2005, thus slowly moving back in line with trend growth. Next to weaker consumer spending due to rising interest rates, the forecast identifies the continuously high U.S. twin deficit as a potential risk factor.

The economic recovery has also remained unbroken in Asia. Despite persistent, albeit dampened deflation, even Japan appears to have overcome the years of economic slowdown: In 2003, GDP went up 2.7%. Faster growth was attributable to a rise in both external and domestic demand.

Japan's exports mainly went to the expanding economies of Asia. China and other countries in the region, such as Thailand, Singapore and Malaysia, are currently profiting from rising demand in the U.S.A. In parallel, greater consumer confidence in these countries should lead to healthy growth in domestic demand. With its economy overheating in individual sectors, China poses a risk to the sustainability of the economic upswing in Asia. All told, the surge in intraregional trade since the Asian crisis has shown that the entire region now tends to be less dependent on the economic cycles of major industrialized countries. To become an engine of global economy, the region would now have to step up financial reforms, improve governance and boost labor productivity further.

Unlike in the U.S.A. and Japan, the economic upturn in the euro area has remained hesitant. Although the upswing gained a foothold in the second half of 2003, euro area GDP went up by no more than 0.4% over the entire year 2003. Investment picked up considerably in the last quarter of 2003, however, which was mainly attributable to a rise in business confidence; moreover, the level of euro area interest rates, which was significantly below long-term averages, may also have contributed to boosting investment.

Consumer spending, which had been weak since the first quarter of 2002, stagnated at the previous quarter's level in the fourth quarter of 2003. This weakness in demand may be traced to the slow growth in disposable income and the ongoing lackluster consumer confidence. The trend is reflected in the European Commission's survey of consumer confidence, which has continuously

Chart 1

Strong Economic Recovery in the U.S.A. and Japan

(Year-on-year GDP growth)

Source: Eurostat.
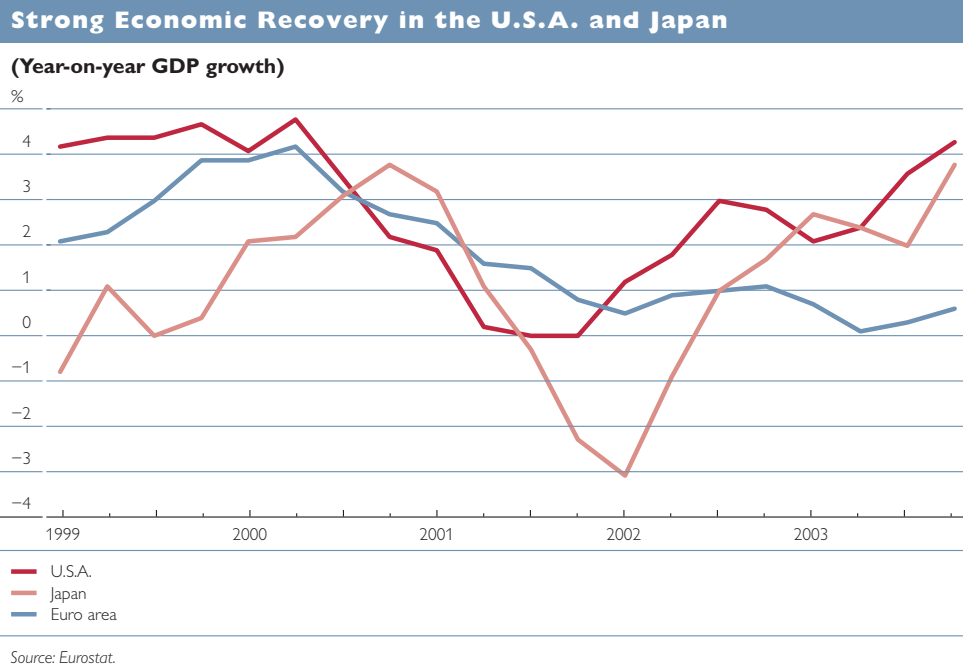
improved since March 2003, but still remains at a low level. While households assess the general state of the economy more positively, they do not anticipate any improvement in their own financial situation. On the one hand, this conclusion is attributable to the labor market situation: As the uptrend has so far only been moderate, the unemployment rate has not gone down, and employment figures have remained stagnant over the last few quarters. On the other hand, uncertainties about the future of social security systems in the field of health care and pensions may also have temporarily suppressed consumer demand.

The economic outlook for the euro area still points to gradual improvement. After having been on an uptrend since mid-2003, the European Commission's Economic Sentiment Indicator flattened at the beginning of 2004. The marked growth of the euro area's international trading partners' economies should offset

the effects of the strong euro on net exports. Likewise, throughout 2004 favorable financing conditions should tend to strengthen domestic demand in the euro area, which has not lived up to expectations so far. In its spring forecast, the IMF expects euro area GDP to advance by 1.7% in 2004 and growth to accelerate to 2.3% in 2005. According to the IMF, euro area inflation will come to 1.7% for the entire year.

Lower Risk Aversion Determines International Financial Markets

Corporate balance sheets have improved and risk aversion has generally decreased as a consequence of the global economic upswing that began in mid-2003 and the largely favorable growth and inflation prospects along with rather low interest rates. These developments in turn created a positive environment for risk capital markets. Expectations of interest rate increases in the U.S.A. and the euro area, which were still present in late

Chart 2

Capital Flows to High-Yield Bonds Reduce Spreads

Interest rate spread over U.S. government bonds

Basis points   *Basis points*

— U.S. corporate bond spreads BBB-rated
— EMBI Plus (right-hand scale)

Source: Thomson Datastream, J.P. Morgan.
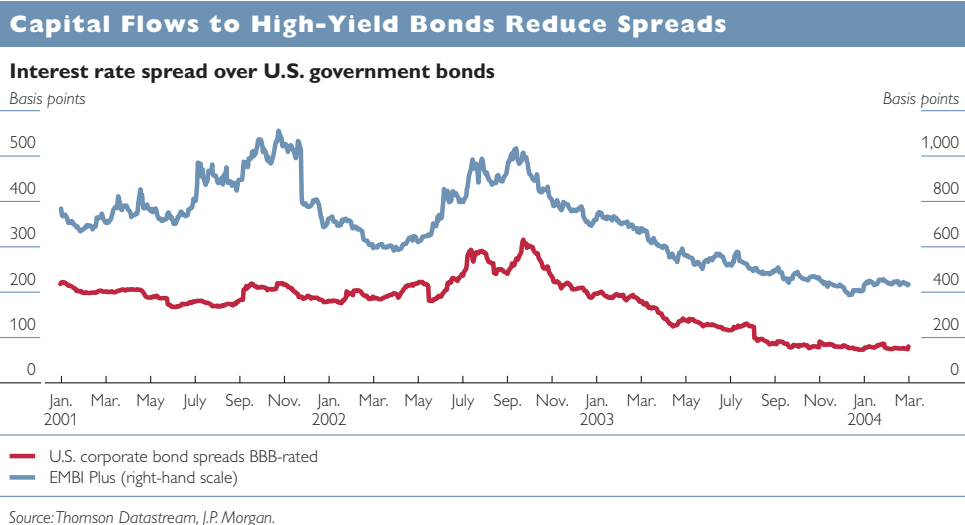
fall 2003, were dampened at the beginning of 2004 by the publication of weaker than projected cyclical data, which temporarily caused prices in both U.S. and euro area bond markets to surge. Moreover, greater geopolitical uncertainties following the Madrid terrorist attack at the beginning of March 2004 may, on a short-term basis, have played a role in the flattening of the yield curve in the industrialized economies. While the negative interest rate spread between U.S. and euro area long-term benchmark bonds initially continued to expand, the spread turned positive in April 2004 given the stronger rise in U.S. interest rates. The main reason for this repeated trend reversal was the publication of U.S. labor market data that were significantly more positive than in previous months.

According to the EMBI Plus index for emerging markets' U.S. dollar-denominated bonds, interest rate spreads over U.S. government bonds have more than halved since fall 2002, declining from more than 1,000 basis points to below 500 basis points. Corporate spreads in the BBB-rated sector went down to approxi-

mately one third of the spreads measured one and a half years ago. Apart from the pickup in economic growth and a continuously brighter economic outlook, the major driving forces behind these capital flows were the historically low level of interest rates in the industrialized countries and the related move toward higher-yield – and higher-risk – instruments. In the medium term, the question whether the financial situation of low-rated issuers will stay stable may depend on future interest rate developments in the industrialized countries. If investors reassess the relation between interest rate levels, fundamentals and investor risks, capital flows may well become more differentiated, causing a rise in both the relative and absolute refinancing costs for individual issuers.

Together, the positive economic development originating in the U.S.A. and Asia and the fall in long-term interest rates were key factors behind the bullish trend on international stock markets. Combined with favorable financing conditions, the rising demand for goods and services should have a positive impact on enterprise profitability, where profit announce-

ments for the fourth quarter of 2003 were in many cases better than expected and are anticipated to remain positive. However, the Madrid terrorist attack at the beginning of March 2004 and a rise in risk aversion prompted a short-term interruption in this trend.

To counteract a too rapid appreciation of the Japanese yen vis-à-vis the U.S. dollar, Japan continued its intervention policy. Between end-2002 and March 2004, Japan's foreign reserves climbed by close to 80% to USD 806 billion, with foreign exchange interventions intensifying in particular during the past few months. Until March 2004, China, India and many emerging economies in Southeast Asia massively expanded their foreign currency holdings as well; this may, in turn, have contributed to the relatively low level of interest rates for U.S. government bonds. Also, there have been strong movements in the USD/EUR exchange rate over the last few months. Both the changing interest rate spread in the long-term yield segment and continued concerns about the U.S. twin deficit may be among the reasons for the appreciation of the euro against the U.S. dollar in the fourth quarter of 2003 and at the beginning of 2004. In January, the USD/EUR exchange rate peaked at 1.29, only to weaken continuously afterwards as a consequence of statements by individual members of the Governing Council of the ECB. The communiqué issued after the G7 meeting in Boca Raton, Florida, in February 2004 is also considered to have played a role in this trend reversal. The most recent USD/EUR exchange rates were below 1.20, a level which most likely reflects the different growth perspectives according to recently published cyclical data as well as the positive (from the U.S. perspective) interest rate spread at the long end. At the end of 2003 and during the first quarter of 2004, the pound sterling appreciated against the euro and the U.S. dollar. This movement is traceable on the one hand to robust economic growth (based on a booming real estate market and a strong rise in consumer spending) and on the other hand to the anticipated widening of interest rate differentials between Europe and the U.S.A. Interest rate expectations were confirmed by the Bank of England's repo rate increase by 25 basis points in November 2003 and February 2004, respectively. The Swiss franc was weak throughout 2003 and into 2004. Heightened risk aversion in the global financial markets in the wake of the Madrid terrorist attack, however, has resulted in a slight appreciation of the Swiss franc against the euro.

Central and Eastern Europe
Eurobond Risk Premiums Decline
Emerging market issuers' bonds performed well in 2003. The spread of government bond yields denominated in euro and U.S. dollars against euro area and U.S. benchmark bonds sank by an average of 322 and 254 basis points, respectively, in the course of 2003 (on the basis of J.P. Morgan's EMBI Global and Euro EMBI Global). This corresponds to a total return of 25.7% (denominated in U.S. dollars) and 18% (denominated in euro).

The evident homogeneity of the spread changes across all countries covered by the Euro EMBI Global (drop in spreads in all countries except Argentina) suggests that global factors were at work, above all low interest rates in the main industrialized countries and the high liquidity they entail. While the low interest rates reduced the cost of financial investment

Chart 3

Global Contraction of Spreads in 2003

Change in Euro EMBI Global spreads

Basis points

Legend:
- ■ 2003
- ■ 1st quarter of 2004

Source: Bloomberg.
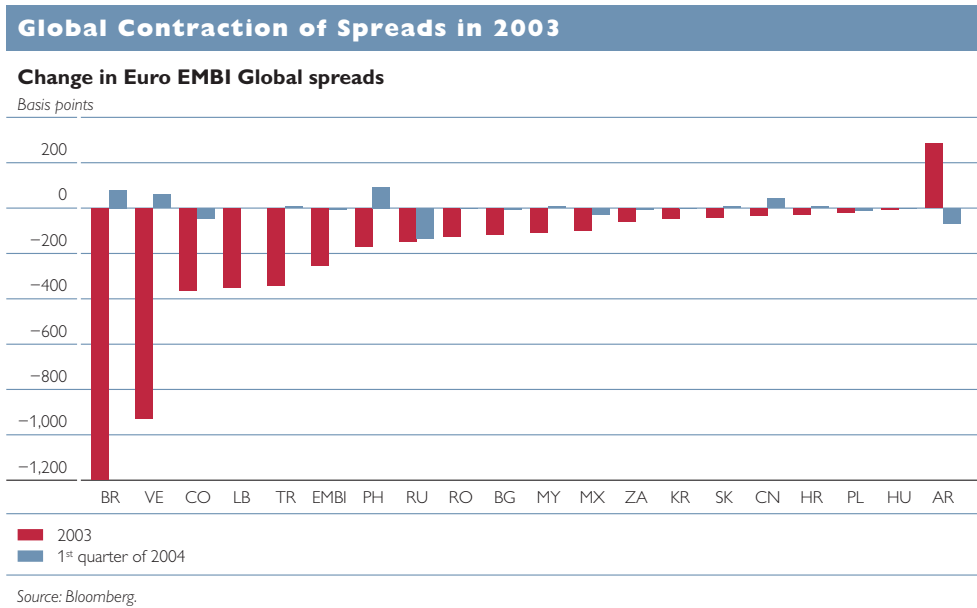
in emerging markets, it also drove investors to seek higher yields.

However, the individual country factors also played a role in compressing spreads. Many issuer countries' economic fundamentals improved, as is reflected by higher ratings. In particular, Russia was given an investment grade rating, opening this market for a larger group of investors. Russia's upgrade was justified by the boost higher oil prices gave its economy in the form above all of high growth, declining inflation and a strong external position (surplus on current account, rising direct investment inflows, doubling of gross re-

serve assets). Among the CEECs, Bulgaria and Romania registered the largest declines in spreads over euro area benchmark bonds, which corresponded to a return of some 13% to 14%. Both countries achieved further progress in EU accession negotiations. Their economies were characterized by robust growth along with subsiding inflation. This performance was marred somewhat by rising current account shortfalls, with direct investment inflows offsetting the entire deficit in Bulgaria and only half the deficit in Romania. Higher ratings reflect both countries' improved fundamentals. Slovakia posted further progress

Table 1

Rating Improvements since the Beginning of 2003

Changes of ratings for long-term foreign currency debt

	Moody's			Standard & Poor's			Fitch		
	Rating	Since	Change	Rating	Since	Change	Rating	Since	Change
Bulgaria	Ba2	June 5, 2003	⇑	BB+	May 22, 2003	⇑	BB+	July 24, 2003	⇑
Romania	Ba3	Dec. 11, 2003	⇑	BB	Sep. 17, 2003	⇑	BB	Dec. 18, 2003	⇑
Russia	Baa3	Oct. 10, 2003	⇑	BB+	Jan. 27, 2004	⇑	BB+	May 13, 2003	⇑
Slowak Republic	A3	Nov. 12, 2002		BBB+	Mar. 2, 2004	⇑	BBB+	Jan. 22, 2004	⇑
Slovenia	Aa3	Nov. 12, 2002		A+	Mar. 26, 2003	⇑	A+	May 6, 2003	⇑
Czech Republic	A1	Nov. 12, 2002		A−	Nov. 5, 1998		A−	June 20, 2003	⇑
Turkey	B1	Dec. 21, 2000		B+	Oct. 16, 2003	⇑	B+	Feb. 9, 2004	⇑

Source: Bloomberg.

with structural and fiscal policy re-form coupled with a manifest reduction of the current account deficit, causing the Slovak eurobond spread to plummet and entailing a rating upgrade in March 2004.

At the beginning of 2004, the downtrend in yield spreads came to a temporary halt when the market was flooded with new issues and when there were fears that the interest rate cycle in the U.S.A. could turn upward earlier than expected. Spreads did not respond the same in each country, however, which points to an increasingly selective approach of investors. After the specter of rising interest rates had been calmed, spreads generally resumed their decline from mid-March.

Considering the historical lows of yield spreads and market expectations that U.S. interest rates would climb over the year, eurobonds are not likely to repeat their 2003 performance. Over the coming months speculation above all about when the interest rate cycle will turn in the U.S.A. may cause swings in the spread in both directions. However, the prospective

recovery of the global economy and the pickup in most issuing countries' fundamentals as well as in particular the better debt profile of many countries appear to suggest that there will be no large-scale disruptions on these capital markets.

Exchange Rate Trends

Exchange rate developments diverged across the CEECs in 2003. Whereas the Polish zloty, the Hungarian forint and the Russian ruble closed with the greatest losses against the euro, the Czech koruna depreciated by only around 2.6% against the euro. The Slovenian tolar closed with a nominal depreciation of roughly the same order against the euro. The Slovak koruna remained unaffected by the depreciation of neighboring countries' currencies and firmed against the euro by nearly 1%. In the first quarter of 2004, the Czech koruna, the Polish zloty and the Slovenian tolar lost further ground. The zloty began to recover at the end of February. The Hungarian forint and the Russian ruble regained about half the terrain lost in 2003. The Slovak koruna re-

Chart 4

Ruble and Zloty Strongly Influenced by EUR/USD Development

December 31, 2000 = 100

- Czech koruna
- Hungarian forint
- Polish zloty
- Slovak koruna
- Russian ruble
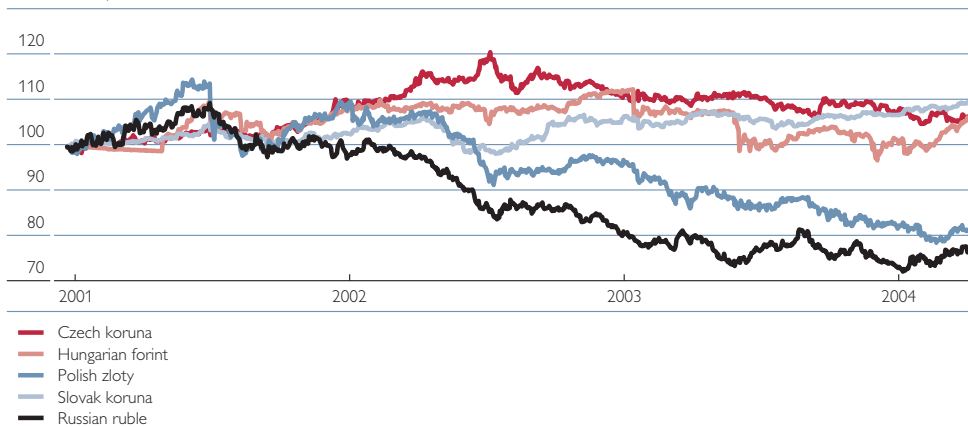
Source: Bloomberg.
Note: Exchange rate: euro per unit of national currency.

mained under unmitigated appreciation pressure.

Whereas the Slovak government's continuation of its reform policy is strengthening trust in the country's currency, Poland and Hungary posted a disappointing budget outturn for 2003 and have to contend with increasing scepticism about the credibility of their fiscal consolidation intentions. The development of the Polish zloty against the euro remains influenced by the euro's development against the U.S. dollar as well.

Moreover, Slovakia succeeded in slashing its current account deficit by about 7 percentage points of GDP against 2002. Slovakia also remains an important destination of foreign direct investment, which represents a good source of finance to offset the current account deficit. Poland also closed 2003 with an improved current account as a result of exchange rate changes and improved unit labor costs. The shortfall was fully offset by direct investment inflows. By contrast, the animated rise in domestic demand triggered a surge in Hungary's current account deficit to almost 9% of GDP (from 7% in 2002) and raised foreign debt. Signs of an improvement began during the fourth quarter of 2003 and should multiply during the year 2004 as a consequence of more moderate wage growth and fiscal consolidation. The Czech Republic's current account deficit widened considerably in the second half of 2003. Moreover, unlike in the two preceding years, only half of the deficit was financed by net direct investment inflows. The stability of the Croatian kuna concealed the growing economic imbalances. Croatia did not observe its agreements with the IMF: the budget deficit climbed to 5.5% rather than 4.6% of GDP, the current account deficit mounted to 6.7% rather than 5.9% of GDP, and the country's foreign debt expanded to 75% of GDP at the end of 2003 (2002: 61.7%).

Magyar Nemzeti Bank (MNB) took crucial interest rate policy steps in 2003 to counteract large exchange rate fluctuations. While the bank lowered interest rates at the beginning of the year to fend off speculations of a revaluation, it hiked interest rates by a total of 600 basis points to 12.5% in the second half of 2003. Thanks to the pronounced interest rate differential, the announcement of austerity measures and better current account data, MNB managed to reverse the depreciation trend and even had sufficient room to cut interest rates twice by 25 basis points each time from the end of March 2004. *Narodowy Bank Polski* has left its key interest rates unchanged at 5.25% since mid-2003. With the economy on the recovery track and slightly higher inflation, expectations that interest rates would be cut were replaced by the assumption that the interest rate trend could turn around, which, along with the government's first success in gaining the support of parliament for its austerity package, propped up the Polish currency. The positive economic factors have, however, contrasted with increased political risk since the end of March after the news spread that the prime minister would step down. Exchange rate developments over the upcoming months are likely to be contingent on whether the new government will be able to summon a parliamentary majority. The deterioration of the balance of portfolio investment in the Czech Republic (higher outflows of residents' portfolio capital as well as weaker inflows from nonresidents) are likely to be linked to low

interest rate and yield levels as well as the anticipation that yields would rise. Whereas *Národná banka Slovenska* intervened on the foreign exchange market in the first half of 2003 to prevent the Slovak koruna from strengthening, in the second half it slashed key interest rates by 50 basis points all in all and further reduced them by 50 basis points to 5.5% in March 2004. In addition, the central bank intervened from December 2003 to bring the appreciation of the Slovak koruna to a halt. If the revaluation pressure should continue, additional central bank intervention and interest rate measures may well be in the cards in the course of the next few months. *Banka Slovenije,* meanwhile, continues to pursue its policy of gradual devaluation in line with the interest rate differential between Slovenia and the euro area. In this respect, interest rates have been cut repeatedly in recent months and thus the devaluation rate was slowed. Banka Slovenije also hopes that ebbing inflation will permit it to reduce interest rates in the next few months and that its devaluation policy, which is oriented on the interest rate differential, will help the exchange rate to stabilize more and more.

The trend of the Russian ruble against the euro will remain influenced primarily by the development of the euro against the U.S. dollar. The ruble firmed gradually and consistently against its reference currency, the U.S. dollar, by a total of more than 9% over 2003. Since the end of January 2004 the ruble's exchange rate has been stable against the U.S. dollar, so that the currency firmed against the euro as a result of the development of the euro against the U.S. dollar. In this connection, the Russian central bank is pondering a stronger orientation of the ruble's exchange rate on an EUR/USD currency basket.

Local Currency Government Bonds

The yield differential between local currency-denominated government bonds and euro area benchmark bonds widened in the Czech Republic, Hungary, Poland and Slovakia in 2003, but to quite different degrees.

Differentials increased most in Hungary, where the yield spread in the ten-year segment augmented by 140 basis points to some 400 basis points. Polish ten-year bonds ended the year 2003 with a differential of 220 basis points, up by nearly 90 basis points from the beginning of the year. Yield spreads on Czech long-term bonds advanced by 55 basis points, those of Slovak ten-year government bonds edged up by just 16 basis points. Hungarian and Polish spreads continued to expand at the beginning of 2004. In Poland the situation stabilized mid-January, while Hungarian yield spreads have been dropping since the end of February. Czech and Slovak yield differentials stayed fairly stable during the first three months of 2004.

Yields were impacted by several factors: Apart from the pickup in inflation in the second half of 2003 in all four countries analyzed, uncertainties about fiscal policy and the exchange rate in Poland and Hungary and the boost in key interest rates in Hungary influenced yield developments.

The bond marked evolved against a changing inflationary background in the course of 2003. Deflation in the Czech Republic was replaced by a rise in inflation from the fourth quarter of 2003 to 2% by February 2004. Considering that the Czech koruna is expected to strengthen against the euro in the long term

Chart 5

Yield Spreads Widen in the Second Half of 2003

Yield differentials of ten-year government bonds against euro area benchmark bonds

Percentage points

- Czech koruna
- Hungarian forint
- Polish zloty
- Slovak koruna

Source: Bloomberg.

and that money market rates are forecast to stay unchanged in the medium term (as measured by the implied three-month rate in nine months), the rise in Czech yields are probably attributable in particular to the (expected) quickening of inflation. Polish inflation also gained momentum gradually from 0.5% in the first three quarters of 2003 to just under 2% in February 2004. Disinflation reversed in Hungary in mid-2003, with inflation doubling to 7% by February 2004. In Slovakia, increases in regulated prices and indirect tax changes fueled steady high inflation (8% to 9%) and also caused core inflation to rise, though by a still fairly moderate rate.

In the second half of 2003 budgetary developments in Poland and Hungary in tandem with doubts about the credibility of the governments' fiscal consolidation plans led to investor uncertainty about the medium-term outlook for yields. First signs of improvement in the fiscal area were

at the heart of the narrowing of spreads in the first quarter of 2004. Conversely, in the Czech Republic, the budget shortfall was nearly unchanged against the 2002 deficit (following a revision for an unanticipated one-off effect in connection with a state guarantee) and was perceptibly lower than the value announced in mid-2003. However, the consolidation plan presented in mid-2003 implies that the deficit will not sink below 3% of GDP before 2007 at the earliest. By contrast, not only did Slovakia's fiscal situation improve patently in 2003, but the country also announced that it was aiming to bring the deficit to below 3% already in 2006. A factor which is likely to be linked to the budget situation is that investors' high expectations regarding the time for the euro introduction have been revised: In February 2003 the expectation was that these four countries would introduce the euro in 2008. A year later, this outlook had changed to 2009 for Hungary and Slo-

vakia and to 2010 for the Czech Republic and Poland (Source: Reuters.)

Especially in Poland and Hungary, uncertainty about near-term exchange rate developments is a further factor implicated in the yield increases in the second half of 2003 and the first quarter of 2004. Moreover, this uncertainty was reinforced by a lack of clarity about fiscal policy in both countries, the deterioration of the current account (Hungary), the fragility of the political process and the influence of the EUR/USD exchange rate (Poland) and probably hesitation to conduct stabilizing foreign exchange intervention.

In the fourth quarter of 2003 expectations that money market rates in Poland would decline was superseded by the outlook that money market rates would rise in the medium term (three-month rate in nine months). In Hungary, too, market participants revised upward their expectations for interest rates after

key interest rates had been hiked in the second half of 2003. Increasing interest rates bolstered the rise in long-term yields, whereas the prospect of interest rate cuts which arose in March 2004 added to the decline in yields.

The Banking Sector in Central Europe[1]

Income Performance and Profit Developments

The nominal and real (adjusted for consumer price inflation) return on equity of banks in Croatia, Slovakia, Slovenia and the Czech Republic deteriorated moderately in 2003, albeit from a fairly high level in 2002. This performance is likely to reflect the weaker economic conditions above all during the first half of 2003. Banks in Poland and Hungary, by contrast, succeeded in marginally lifting return on equity from a comparatively low level in 2002.[2]

Table 2

Return on Equity Figures Converge

	2001	2002	H1 02	Q1–3 02	H1 03	Q1–3 03	2003
	%						
Nominal Return on Equity							
Croatia	6.6	13.7	20.4	18.6	17.9	16.3	. .
Poland	12.8	5.2	8.4	8.4	9.7	9.5	5.9
Slovak Republic	21.3	30.1	28.9	26.4	30.9	30.6	27.9
Slovenia	4.8	13.3	18.4	. .	14.0	. .	. .
Czech Republic	16.6	27.4	29.3	29.4	22.7	22.1	23.7
Hungary	16.0	16.1	17.2	17.2	21.9	23.3	17.6
Real Return on Equity							
Croatia	1.5	11.8	17.7	16.5	15.9	14.3	. .
Poland	7.1	3.2	5.6	6.1	9.3	9.0	5.1
Slovak Republic	13.3	26.0	24.2	22.3	21.2	20.4	17.6
Slovenia	−3.5	5.4	9.8	. .	7.4	. .	. .
Czech Republic	11.6	25.6	25.9	27.0	23.2	22.4	23.8
Hungary	6.3	10.4	10.8	11.2	16.9	18.1	12.3

Source: National central banks.
Note: Nominal yield adjusted for consumer price inflation (period average). Subperiod data are linearly annualized.

[1] This chapter reviews the development of the banking industry in the Czech Republic, Hungary, Poland, Slovakia, Slovenia and Croatia. The section "Financial Intermediaries in Austria" analyzes the development of all subsidiaries of Austrian banks established in these countries.

[2] For methodological reasons, a comparison of the subperiod values with annual values does not provide very useful results wherever aggregates are not based solely on stocks.

Table 3

Divergent Development of Profit Components

	2001	2002	H1 02	Q1−3 02	H1 03	Q1−3 03	2003
% of annual average bank assets							
Net Interest Income							
Croatia	3.6	3.3	3.2	. .	3.4	. .	. .
Poland	3.5	3.3	3.1	3.2	3.0	3.0	3.0
Slovak Republic	2.5	2.7	2.6	2.5	2.9	2.9	2.9
Slovenia	3.6	3.7	3.7	. .	3.4	. .	. .
Czech Republic	2.5	2.4	2.5	2.4	2.1	2.1	2.1
Hungary	4.2	4.3	4.0	4.2	3.9	3.9	3.9
% of current operating revenues							
Current Operating Costs							
Croatia	65.6	59.3	59.1	. .	54.5	. .	. .
Poland	61.9	62.9	60.5	60.0	65.8	66.6	68.0
Slovak Republic	65.7	57.9	58.8	59.5	58.9	61.2	63.5
Slovenia	65.2	59.6	60.3	. .	63.1	. .	. .
Czech Republic	53.4	51.4	48.8	49.1	49.4	50.0	52.7
Hungary	66.7	64.7	65.6	64.1	57.6	56.6	61.2
Net Changes in Loan Loss Provisions							
Croatia	13.7	6.6	−0.4	. .	8.6	. .	. .
Poland	19.8	24.2	21.9	22.6	11.8	11.8	15.9
Slovak Republic	−33.4	−9.8	−6.4	−9.8	−13.1	−12.4	−12.4
Slovenia	25.9	19.7	11.1	. .	12.9	. .	. .
Czech Republic	22.8	9.3	13.9	10.1	16.1	5.3	0.9
Hungary	4.3	4.7	2.3	4.0	4.3	3.5	5.2

Source: National central banks.

Note: Data are not comparable between countries. Subperiod data are linearly annualized.

In Poland nominal return on equity advanced from 5.2% to 5.9% in 2003. Adjusted for sinking inflation, real return on equity mounted even more, rising from 3.2% to 5.1%. The pickup was attributable primarily to the lower loan loss provisions required as a consequence of the stabilization of portfolio quality in terms of the ratio of nonperforming loans[3] to total loans (roughly 22% in 2003). At the same time, net interest income (in percent of average assets) and current operating income contracted, signaling that profitability has still not gained a firm foothold despite the economic recovery in 2003. This may be linked in particular to the fact that net exports were the prime growth accelerator. That impression is further reinforced by the fact that after a strong first-quarter performance profitability sagged slightly during the remainder of the year.

Hungarian banks closed 2003 with a further rise in nominal and real return on equity to 17.6% and 12.3%, respectively. With net interest income (in percent of average assets) diminishing somewhat and loan loss provisions (in percent of current operating income) higher, this result is traceable to a higher contribution of noninterest income. This revenue stemmed partly from banks' business with state-subsidized home loans, bank cards and guarantees and partly from a large one-off dividend received by a single bank. The latter factor along with the reduction in the state subsidies for home loans from December 2003 appear to indicate a trend reversal even though banks reacted to the subsidy cuts by introducing foreign currency-denominated home loans. The drop in the cost-to-income ratio represents an additional success factor. Despite the enlargement of home

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[3] *Nonperforming loans are defined as "substandard," "doubtful" or "irrecoverable."*

loans, the ratio of nonperforming loans to total loans slipped to 3% at the end of 2003.

Czech banks' return on equity worsened in 2003 compared with the high score of 2003, but at 24% remained the second-highest result in the region. Real return on equity was just as high because of stable prices. Whereas net interest income and current operating income as well as the cost-to-income ratio deteriorated, the expenses for loan loss provisions (including the write-off of receivables and the costs of the transfer of receivables) lessened. The decline in expenses for loan loss provisions was accompanied by an improvement of portfolio quality: the share of nonperforming loans declined from 8.5% at the end of 2002 to just under 5% at the end of 2003.

Slovak banks closed 2003 with the highest nominal return on equity, but real return on equity diminished markedly against 2002 on account of the rise in inflation. After getting off to an unspectacular start in 2003, net interest income for the entire year surpassed the 2002 value (2.9% against 2.7% of average assets). The release of loan loss provisions also contributed more to total income in 2003 than a year earlier, which corresponded to the shrinking share of bad loans (from 11.7% to 9.4% in total loans). Hence, the drop in nominal return on equity resulted exclusively from the deterioration of the cost-to-income ratio.

Croatian banks also succeeded in enhancing their net interest income position in the first half of 2003 compared with the first half of 2002. In addition, current operating expenditure grew less strongly than operating income, resulting in a considerably better cost-to-income ratio. Profitability worsened above all because loan loss provisions jumped (by comparison with the net release of loan loss provisions in the first half of 2002) Loan loss provisions surged not because portfolio quality eroded, but for other reasons: For one thing, Croatian banks were intent on writing down more loans to make room for new lending in the light of the Croatian central bank's restrictions on the growth rate of loans outstanding. For another thing, several banks changed hands in the first half of 2003, and acquisitions marked a good opportunity to clean up portfolios.

In Slovenia falling net interest and noninterest income (in percent of average assets) and a deterioration of the current operating expenditure-to-income ratio were at the heart of the slippage of banks' return on equity in the first half of 2003. Also, loan loss provisioning was a bit higher than in the first half of 2002, although the share of nonperforming loans in total loans dipped from 7% at the end of 2002 to 6.5% at the end of 2003.

Capital Adequacy

Posting double-digit rates, capital adequacy (the ratio of equity to risk-weighted assets) remained satisfactory in all six countries under review. In Croatia and Hungary, capital adequacy dipped, largely because business activity (asset growth) was too animated for capital increases to keep pace.

Table 4

Capital Adequacy Ratios Remain Largely Stable

	2001	2002	H1 02	Q1−3 02	H1 03	Q1−3 03	2003
Capital adequacy, %							
Croatia	18.5	17.2	17.5	17.3	16.9	16.0	. .
Poland	15.1	13.8	13.7	14.0	13.3	13.6	13.6
Slovak Republic	19.8	21.3	21.0	22.3	22.8	22.2	21.7
Slovenia	11.9	11.9	11.4	. .	11.6	. .	. .
Czech Republic	15.4	14.3	15.4	15.3	15.8	15.5	14.5
Hungary	13.9	13.0	12.5	11.5	11.6	10.8	10.7

Source: National central banks.
Note: Equity in percent of risk-weighted capital.

The Capital Markets of the New EU Member States

The new EU Member States' nominal GDP is only roughly 5.5% of the euro area equivalent. These ten countries' financial markets combine to an even smaller percentage of euro area financial markets.

The total assets of the "other monetary financial institutions" (banks excluding the central bank) of the new Member States amounted to about EUR 353 billion at the end of 2003, less than 2% of the euro area value. This low amount reflects not just the smaller size of the ten countries, but also the partly considerably lower degree of financial intermediation compared to the euro area: Whereas banking assets correspond to 270% of GDP in the euro area, this figure is only 81% in the new Member States, with banking intermediation in the eight CEECs averaging some 75%. This figure breaks down to reveal large differences ranging from 39% (Lithuania) to 105% (Czech Republic).

The outstanding volume of bonds issued by domestic entities in the ten new EU Member States on the domestic market and abroad, irrespective of the currency, came to just under EUR 180 billion at the end of 2002, only 2.4% of the corresponding euro area figure. The three largest markets − the Czech Republic, Hungary and Poland − accounted for 82% of the total amount outstanding. In terms of GDP, the outstanding volume on the new Member States' bond markets averaged some 40%, falling far short of the like figure for the euro area (105%). Here, too, the figures span a wide range, varying from 3.4% (Estonia) to 69% (Malta).

The ten new Member countries' stock market capitalization accounted for just over 2% of the euro area's stock market capitalization in 2003. The stock markets were largest in Poland, the Czech Republic and Hungary. The stock markets of the ten countries also played a smaller role than in the euro area: market capitalization averaged 18% of GDP in the new Member States against 48% in the euro area. The stock market serves as a key source of finance only in three of the countries − Cyprus, Estonia and Malta − with market capitalization in Estonia dominated by a single issuer, Eesti Telekom.

What are the reasons for these differences? First, the low degree of financial intermediation in several of the new Member States stems from lower government debt ratios. Whereas the ten countries' government debt ratio averaged just under 40% at the end of 2002, it came to 69% in the euro area. Second, foreign direct investment (including cross-border intracompany loans) is an important factor in the financing structure of the corporate sector. Consequently, demand for external (noncompany) financing is generally reduced. Also, full liberalization of capital transactions provided companies with a high credit standing access to foreign capital. Finally, while the volume of lending to households expanded markedly in some countries in recent years, it is still quite low.

Bank Assets

December 31, 2003	Assets	Domestic receivables	Assets	Domestic receivables
	EUR million		% of GDP	
Poland	112,189	88,948	60.6	48.1
Slovak Republic	24,159	20,434	83.8	70.9
Slovenia	21,528	18,621	88.8	76.8
Czech Republic	79,424	60,653	104.9	80.1
Hungary	55,980	48,845	76.4	66.7
Estonia	6,302	4,986	84.9	67.2
Latvia	8,393	4,730	92.3	52.0
Lithuania	6,301	5,055	39.1	31.3
Malta[1]	10,205	6,179	254.6	154.1
Cyprus	28,317	20,725	255.4	183.0
Total	352,798	279,176	81.2	64.2
Total (excluding Malta and Cyprus)	314,277	252,272	74.9	60.1
EU-12	19,791,100	16,028,800	272.8	221.0
Austria	605,107	409,261	269.8	182.5

Source: National central banks.
[1] As at September 2003 or GDP from the fourth quarter of 2002 to the third quarter of 2003.

Outstanding Volume of Bonds

December 31, 2002	Public sector	Monetary financial institutions	Other financial corporations	Total
	% of GDP			
Poland	26.5	2.4	3.6	32.5
Slovak Republic	32.6	0.1	0.5	33.2
Slovenia	27.8	18.9	0.7	47.4
Czech Republic	19.5	33.9	3.4	56.8
Hungary	46.6	8.2	1.1	55.9
Estonia	1.7	1.1	0.6	3.4
Latvia	10.1	1.2	0.0	11.3
Lithuania	15.3	0.0	0.7	16.0
Malta	60.0	3.2	5.8	69.0
Cyprus	42.3	6.9	0.5	49.7
Total	28.5	9.3	2.6	40.4
Total (excluding Malta and Cyprus)	27.9	9.4	2.6	39.9
EU-12	54.0	38.0	13.2	105.2
Austria	58.2	60.2	9.2	127.6

Source: ECB.

Stock Market 2003

Annual averages	Market capitalization		Trading volume	
	EUR billion	% of GDP	EUR billion	% of market capitalization
Poland	26,4	14.3	18,5	70.2
Slovak Republic	2,6	9.1	0,6	22.4
Slovenia	4,8	19.8	0,9	18.3
Czech Republic	17,8	23.5	7,9	44.7
Hungary	12,2	16.9	7,2	59.4
Estonia	2,6	35.7	1,1	41.1
Latvia	0,8	9.0	0,1	15.0
Lithuania	3,6	23.4	0,2	4.7
Malta	1,4	30.6	0,0	2.9
Cyprus	4,0	35.7	0,3	6.6
Total	76,3	17.6	37,1	48.6
Total (excluding Malta and Cyprus)	70,9	. .	36,8	51.9
EU-12[1]	3.470,8	47.8	4.518,9	130.2
Austria	37,5	16.8	9,8	26.1

Source: Eurostat.
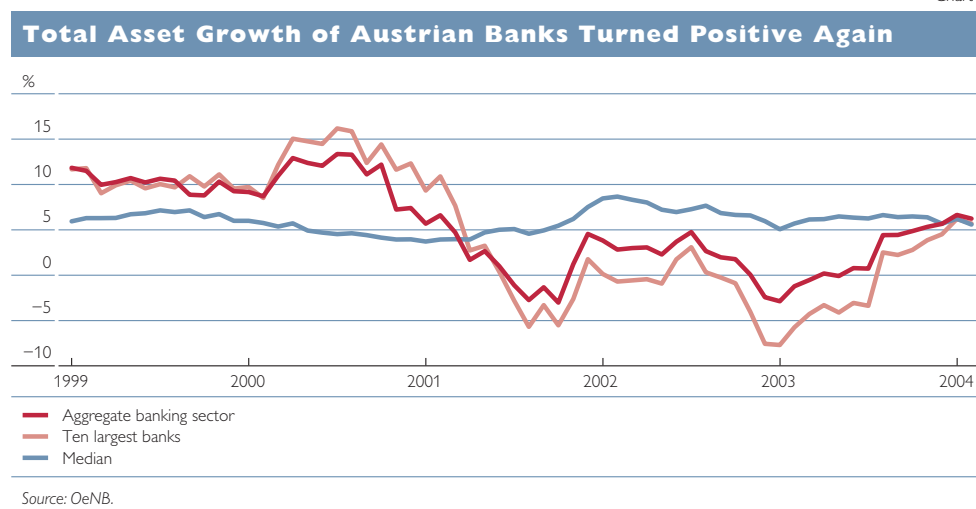[1] Trading volume from November 2002 to October 2003.

Banks

Business Activity and Profitability

Total Assets Reached New High

After declining in the fourth quarter of 2002 and stagnating in the first half of 2003, Austrian banks' aggregate total assets increased in the second half of 2003. In the first two months of 2004, this recovery strengthened, with unconsolidated total assets pick-ing up 6.1% year on year and reaching a new high of EUR 614.12 billion at the beginning of 2004. Chart 6 shows that in February 2004, total asset growth – in particular among the ten largest banks (5.6%, excluding special purpose banks) – of all Aus-trian banks came close to the median change[4] of 5.5%.

Chart 6

Total Asset Growth of Austrian Banks Turned Positive Again

- Aggregate banking sector
- Ten largest banks
- Median

Source: OeNB.

External assets and liabilities, which had grown by 12.7% and 7.8%, respectively, against the previous year, made a particularly large contribution to total asset growth in February 2004, thus driving up the share of external assets and liabilities to about 30% of total assets. Interbank business with domestic banks also picked up, by 7.6% on the assets side and by 10.6% on the liabilities side, contributing 18.5% (assets side) and 19.3% (liabilities side) of all business. Loans to domestic nonbanks expanded by 1.8% in February 2004, i.e. less rapidly year on year, accounting for 38.7% of total assets. Domestic non-banks' deposits grew by 4.3% and thus made up 32.9% of Austrian banks' balance sheet total. Hence, the recent gains in market liquidity reflected in the balance sheet structure to a large extent benefited foreign markets. The higher share of external business is, on the assets side, mainly due to Austrian banks' increasing activities in Eastern Europe, whereas on the liabilities side, it can, inter alia, be attributed to refinancing transactions for foreign currency loans.

A sectoral breakdown reveals that the savings bank sector retained its leading position (not least due to Bank Austria Creditanstalt), accounting for 35.7% of Austrian banks' aggregate unconsolidated total assets in February

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[4]   *The median is the middle value in a set of data arranged in order of decreasing or increasing magnitude, with half the scores being above, the other half below the median. Special purpose banks are not included in the calculation of the median.*

2004, followed by Raiffeisen credit co-operatives (23.4%) and joint stock banks (16.5%). The other sectors' market shares were all lower than 10%: special purpose banks accounted for 8.5%, state mortgage banks for 7.6%, Volksbank credit cooperatives for 5.3% and building and loan associations for 3.1% of total assets.

Derivatives Trading Volume Declining since Second Half of 2003

The nominal volume of derivatives trading expanded by 26.7% year on year in February 2004, coming to EUR 2,240.7 billion. The monthly changes, however, show that the volume has in fact contracted since reaching a high of EUR 2,651.4 billion in August 2003. Accordingly, in February 2004 the nominal volume of derivatives transactions was 3.6 times that of total assets, while in August 2003 the comparable figure had reached a peak of 4.4. Interest rate contracts, in particular interest rate swaps in the trading book, continued to make up the largest part (86.0%) of derivatives transactions in nominal terms, followed by foreign exchange and gold contracts (13.2%). Precious metal, stock and commodities contracts as well as other contracts accounted for only 0.7% of the nominal value of all derivatives transactions in February 2004.

Austrian Banks Posted Higher Profit Thanks to Diminishing Costs in 2003

2003 saw a recovery in Austrian banks' profitability. The unconsolidated[5] operating profit of the entire Austrian banking sector went up by 4.5% from EUR 4.2 billion in 2002 to EUR 4.4 billion in 2003. These data suggest that after the slump recorded in 2002, banks have been faring better more recently, even if they have not yet reached the EUR 4.6 billion posted in 2001.

Unconsolidated operating income inched up by 1.1% to EUR 13.9 billion in 2003. This slight increase did not suffice to offset the decline recorded in 2002.

Fee income, climbing by EUR 175 million or 5.8% year on year, was key to the improvement in operating profit, with net fee income on securities portfolios, which thanks to the stock market recovery came to somewhat more than EUR 1.0 billion in 2003 (exceeding the 2002 figure by EUR 68 million), contributing the largest part. Net fee income on lending operations and payment services also played a significant role, augmenting by EUR 50 million and EUR 62 million, respectively.

Net income on financial transactions increased by EUR 48 million or 8.4% year on year. As stock markets rebounded, net income on securities transactions surged by 80.8% from EUR 167 million in 2002 to EUR 302 million in 2003. At the same time, however, net income on other financial transactions diminished from EUR 174 million in 2002 to EUR 82 million in 2003.

At EUR 7.1 billion, net interest income remained almost unchanged against 2002 (–0.3% year on year) and accounted for slightly more than half of operating income. The interest margin[6] for the entire interest rate

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[5] As the quarterly reports contain income data of the banks operating in Austria on an unconsolidated basis, Central and Eastern European subsidiaries' revenues and expenses etc. are not reflected in these data.

[6] This margin is calculated using the ECB method, which accounts for different volumes on the assets and liabilities sides. Even with this new method the different term structures of assets and liabilities cannot be reflected, however. For details see the ECB study "EU banks' margins and credit standards" published in December 2000.

Chart 7

Operating Expenses and Staff Costs Declined for the First Time in 2003

Annual change in EUR million

Staff costs
Other administrative expenses
Depreciations and other expenses
Operating expenses

Source: OeNB.
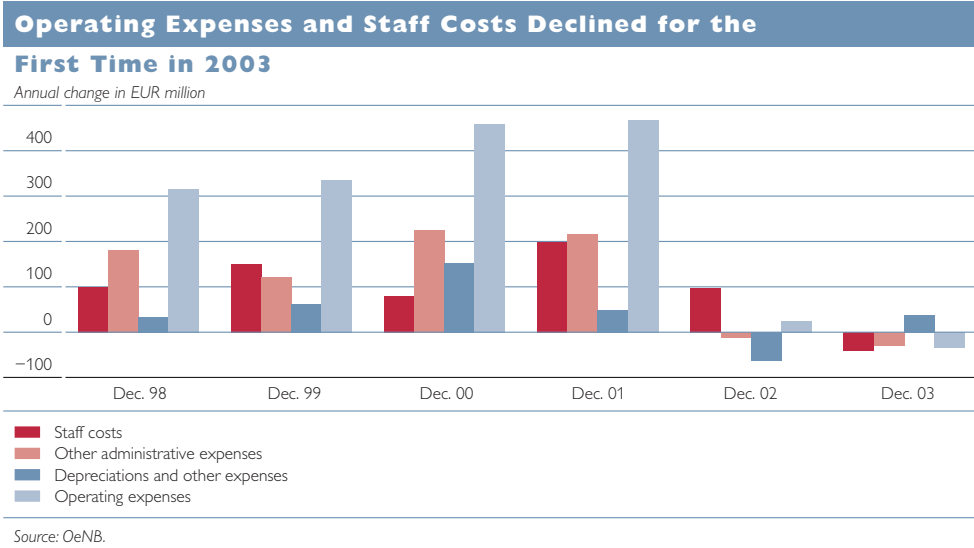
business narrowed continuously from 1.31% in the third quarter of 2002 to 1.27% at the end of 2003, which is, however, still above the trough of 1.24% recorded in early 2001. Joint stock banks (1.21%), savings banks (1.25%) and state mortgage banks (1.12%) reported below-average interest margins, while Raiffeisen (1.45%) and Volksbank credit cooperatives (1.46%) posted above-average interest margins.

The current generally low interest rate level could put pressure on interest margins in certain areas of business. The new MFI interest rate statistics on new euro-denominated business with nonfinancial corporations, launched in 2003, show that interest margins[7] declined from 1.33% in March 2003 to 0.95% in February 2004.

Income on securities and participating interests which are not included in the trading portfolio decreased by 2.9% to EUR 1.7 billion; however, they played a minor role,

accounting for only 12% of total operating income.

Banks' cost-cutting policies fed through to operating expenses, which for the first time since quarterly reporting was introduced decreased for the entire unconsolidated Austrian banking sector year on year, coming to slightly below EUR 9.5 billion at the end of 2003, 0.4% less than one year earlier.

Staff costs, representing more than half of total expenses, contracted by 0.9% to EUR 4.7 billion. Austrian banks' total staff capacity[8] shrank by 3.0% to 67,463. A sectoral breakdown shows that staff capacity declined most markedly at joint stock banks and savings banks (by 6.3% and 6.4%, respectively), and within those sectors first and foremost at the large banks. In the Raiffeisen and Volksbank sectors, staff capacity remained almost unchanged (increasing by 0.1% and decreasing by 0.2%, respectively), while state mortgage

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[7]   *Interest differential between loans of above EUR 1 million with a maturity of up to one year and deposits with a maturity of up to one year.*

[8]   *Part-time employees are counted as fractions of full-time employees, i.e. two half-time employees are counted as one full-time employee.*

banks and building and loan associations hired additional staff (+1.7% and +2.9%, respectively). Average staff costs[9] per employee[10] for the entire banking sector amounted to somewhat more than EUR 70,250 in 2003; this figure was higher for special purpose banks and savings banks and lower for all other sectors.

Other administrative expenses, accounting for almost 33% of operating expenses, declined by 1.0% to EUR 3.1 billion. If it were not for the rise in depreciations (2.3% year on year) and other expenses (2.5% year on year) the cost savings would have been even higher.

The pickup in operating income and the decline in operating expenses improved the cost-income ratio, which for the entire unconsolidated Austrian banking sector fell from 69.3% at the end of 2002 to 68.2% at the end of 2003. However, it remained above the record low achieved in 2000 (65.4%), which serves as a yardstick for Austrian banks' profitability. Bucking the general trend, building and loan associations saw a deterioration of their cost-income ratio from 80.6% to 85.9% and the Raiffeisen sector a somewhat smaller rise from 64.5% to 64.6%.

The quarterly reports[11] indicate that the level of provisioning declined in 2003. The balance of transfers to and recoveries from loan loss provisions fell by 19.1% from EUR 2.2 billion in 2002 to a projected EUR 1.7 billion in 2003. In addition, banks anticipated the balance of transfers to and recoveries from provisions for securities and participating interests of EUR 61 million to boost operating income at the end of 2003. Income on ordinary activities was expected to rise by approximately 31% to EUR 2.7 billion. After factoring in extraordinary income and taxes, annual profit was expected to increase by some 54% to EUR 2.1 billion. Neither income from ordinary activities nor annual profits will have reached the levels recorded in 2000 and 2001, however.

Assessment of Profitability on a Consolidated Basis

Underpinning the results of the analysis of unconsolidated data,[12] the analysis of consolidated data also revealed that Austrian banking sector profitability had improved in 2003. Net interest income, which, on a consolidated basis, includes income from securities and participating interests, as well as net fee income and trading income were on the rise. Altogether, consolidated operating income augmented by 4.8%.

Since at 3.2% administrative expenses increased less strongly than operating income and risk provisioning declined markedly in 2003 compared with 2002, the consolidated end-of-period result before tax increased by 21.3% year on year. The consolidated return on assets (ROA)[13] for the consolidated Austrian banking sector rose from 0.30% in 2002 to 0.38% in 2003.

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[9]   Staff costs include wages and salaries as well as statutory social security charges and contributions, retirement expenditures, provisions for pension and severance payments as well as other social charges.

[10] Including part-time employees.

[11] Loan loss provisions, income on ordinary activities and profit/loss after taxes and extraordinary income for the year are year-end results projected by the banks.

[12] The analysis of consolidated data takes into account the results of banking groups and thus also comprises the income and expenses of foreign subsidiaries.

[13] Annual result after tax and minority interest in relation to total assets.

Credit Risk

Moderate Upturn in Loan Demand

While loan growth had been rather sluggish over recent quarters, it began to recover in the past few months. Against the backdrop of economic conditions improving both at the international and the national level, the annual loan growth rate of all Austrian banks came to 1.6% at the end of 2003 (see chart 8). The growth rates of 2.3% and 1.8% recorded in January and February 2004, respec-

tively, suggest that the upward trend in lending will continue in 2004. The acceleration of loan growth in the last few months of 2003 reported by the ten largest Austrian banks in terms of total assets (see chart 8) can be traced chiefly to new loans extended by one single major bank. In early 2004, loan growth at the ten largest banks lost some momentum; at 0.3% in February 2004, it was significantly below the median value, which was 3.3% at that time.

Chart 8

Loan Growth Improved

Aggregate banking sector
Mean of ten largest banks
Median

Source: OeNB.
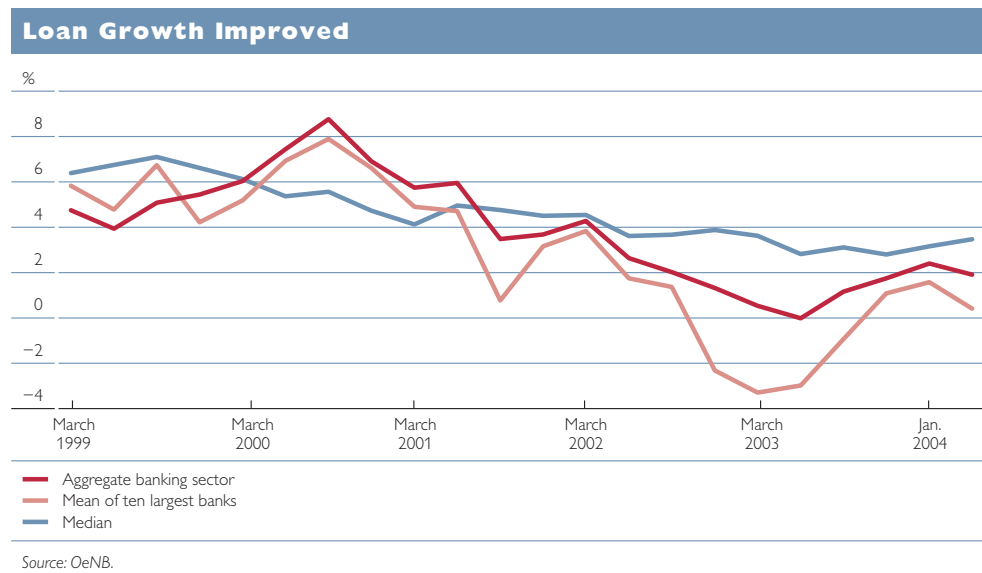
Almost all banking sectors saw an acceleration of loan growth in 2003, with the exception of building and loan associations, which reported declining loans (February 2004: –3%). The sector's current weakness in new lending may be attributable to the fact that it offers no foreign currency loans, which is an incentive for customers to turn to other banks for housing loans.

A breakdown by economic sectors reveals that loan growth picked up across the economy. Corporate lending, while continuing to be subdued despite favorable financing conditions, after a long-lasting decline in previous

periods, posted an annual growth rate of 0.3% at the end of February 2004 (see chart 9).

Loan growth was much livelier in other economic sectors. Loans to nonbank financial intermediaries expanded by 5.1% year on year in February 2004, loans to general government (central, regional and local government) by 4.5%. Households, which unlike other sectors had continued to account for relatively stable loan growth rates also during the economic downturn over recent quarters, posted an annual growth rate of 3.5% at the end of February 2004.

Chart 9

Loan Growth Picked Up Across All Economic Sectors

EUR billion

%

Legend:
- Households
- Nonfinancial enterprises
- General government
- Financial intermediaries exkluding banks
- Growth of loans to nonfinancial enterprises (right-hand scale)

Source: OeNB.
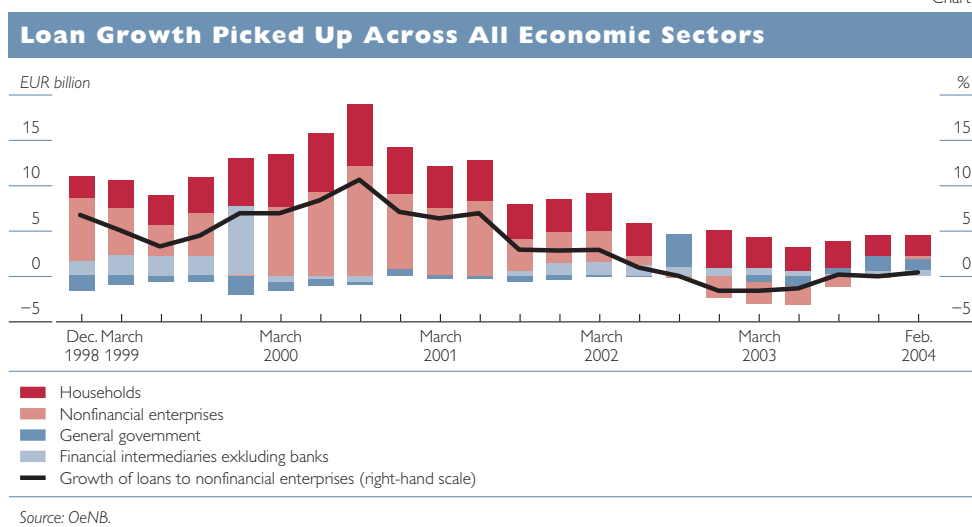
Slight Increase in Loan Loss Provisions at Major Banks

The ratio of specific loan loss provisions to claims on nonbanks[14] amounted to 3.56% in February 2004, which points to a stabilization compared with February 2003. Hence, a trend reversal might eventually take place, after loan loss provisions relative to claims on nonbanks had been rising continuously from early 2001 to the end of 2003.

Like in the past, this ratio was higher in the multi-tier sectors. In February 2004, the ratio came to 4.0% at savings banks, 5.5% at Volksbank credit cooperatives and 4.6% at Raiffeisen credit cooperatives. Joint stock banks recorded a slight increase from 2.9% to 3.0%. By contrast, at state mortgage banks, the ratio of loan loss provisions to claims on nonbanks dropped from 2.6% in February 2003 to 2.2% in February 2004. Building and loan associations posted a ratio of 0.6%, special purpose banks a ratio of 0.8%.

65 banks (or 7% of all Austrian credit institutions) reported loan loss provisions exceeding 10% of total claims on nonbanks in February 2004. One year earlier, their number had been 67. At the same time, the number of banks with loan loss provisions of more than 20% of total claims on nonbanks rose from 4 to 5.

In the past, the ten largest banks' ratio of loan loss provisions to claims on nonbanks was always 1 to 2 percentage points below the median of all banks (chart 10). In February 2004, the mean value of the ten largest banks was 3.0%, the median 4.8%. The median thus had remained almost unchanged compared with February 2003, whereas the loan loss provisions taken by the systemically important banks in respect of claims on nonbanks had increased by 8.6%. This higher ratio at the ten largest banks may also reflect the insolvency of the Italian Parmalat group, which had chiefly affected major banks. Nevertheless, the Parmalat insolvency

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[14] Loan loss provisions are amounts that banks report as risk provisions in cases where there are reasonable doubts about the solvency of the debtor. Since according to experience, loan loss provisions vis-à-vis banks are rather low, they are not taken into account in this analysis.

Chart 10

Loan Loss Provisions Relative to Claims on Nonbanks

Broadly Stable, Major Banks Reported Small Increase

Aggregate banking sector
Average of ten largest banks
Median

Source: OeNB.
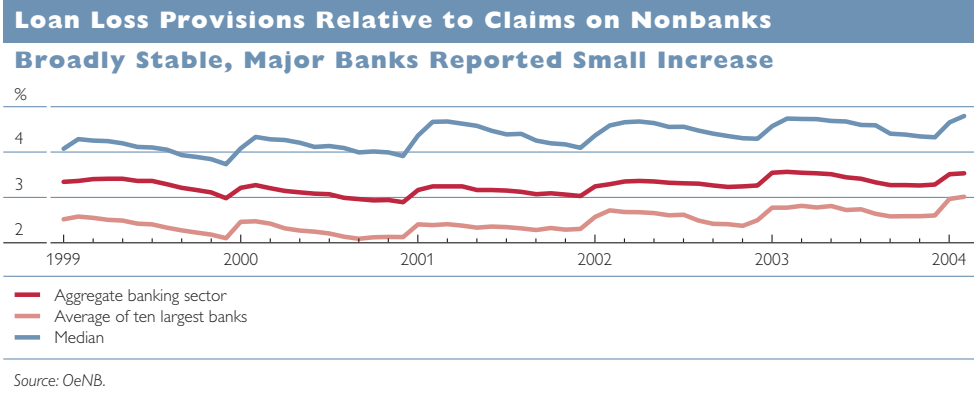
had no impact on the stability of the Austrian financial market.

All in all, the quality of Austrian banks' credit portfolios is satisfactory, despite the rise in loan loss provisions in the past few years, which was ascribable first and foremost to the weak economic environment. Furthermore, the data available do not point to any major increase in the strain on the financial system caused by higher bad loan charge-offs.

The Oesterreichische Nationalbank and the Austrian Financial Market Authority Jointly Prepare Guidelines on Credit Risk

The increased use of innovative financial products like securitization or credit derivatives as well as the refinement of modern risk management techniques have substantially changed the conditions under which Austrian banks operate. One of the areas most affected by these innovations is lending, where internal software systems and processes need to be adapted.

It is the common goal of the OeNB and the FMA to provide banks with the best support possible in this adjustment process. To this end, the OeNB and the FMA will jointly publish a series of guidelines on credit risk in the course of 2004. The ten volumes are to assist banks in the redesign of relevant systems and processes made necessary by the implementation of the New Basel Capital Accord (Basel II), providing advice on what solutions may be adequate depending on the complexity of individual banks' business structures.

The ten volume series will cover the following topics:
- *Volume 1: Best practice in securitization risk management*
- *Volume 2: Rating models and rating validation*
- *Volume 3: Credit assignment process and credit risk management*
- *Volume 4: Credit risk-mitigating techniques: Austria*
- *Volumes 5 to 10: Credit risk-mitigating techniques: Eastern European countries (Czech Republic, Poland, Slovakia, Hungary, Croatia, Slovenia)*

The guidelines take account of international developments in banking and offer examples of best practice that banks are well-advised to implement not only against the background of Basel II.

Thus, a common understanding between supervisors and banks as regards upcoming changes in banking is to be created. The OeNB considers itself a partner of the Austrian banking industry, providing its services in a transparent way to all market participants with the aim of maintaining the stability and competitiveness of the Austrian financial market.

## Sustained Trend of Household Borrowing in Swiss Francs

While in the first half of 2003 the share of foreign currency borrowing by households seemed to have stabilized at roughly 25%, February 2004 saw a rise to a new historic high of almost 27% (see chart 11). By contrast, in the same period, corporate borrowing in foreign currency leveled off at some 18%, after it had even declined somewhat in the first half of 2003. On the whole, the share of foreign currency loans in total claims on non-banks increased slightly from 18.2% in mid-2003 to 18.6% in February 2004.

The trend seen since mid-2002 towards borrowing in Swiss francs continued. At the end of February 2004, 83.0% of foreign currency loans were denominated in Swiss francs and only 10.4% in Japanese yen. When the boom in yen-denominated loans was at its height in the second quarter of 2002, the share of borrowing in yen had been as high as 42.8% and the share of Swiss franc-denominated loans 50.3%. Many borrowers who had taken out Japanese yen-denominated loans in the late 1990s apparently took advantage of the depreciating trend of the yen and converted their loans into euro- or Swiss franc-denominated loans, thereby, obviously, realizing exchange rate gains in many cases. Considering that the relative difference between the highest and the lowest exchange rate of the Japanese yen since 1999 was more than 30%, it becomes clear that these transactions involved substantial risk. From a financial stability point of view, the trend towards lending in Swiss francs is a development to be welcomed since it involves much smaller exchange rate risk than lending in Japanese yen. Still, it needs to be pointed out that Swiss franc-denominated loans also carry a nonnegligible exchange rate risk. Therefore, the need for a thorough monitoring and analysis of foreign currency lending and its impact on financial stability remains.

Chart 11

Foreign Currency Loans to Households Up Again
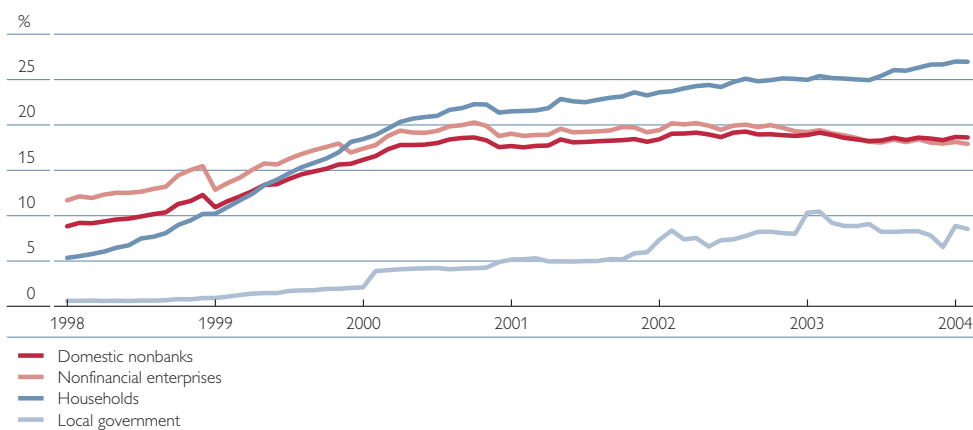
Source: OeNB.

Individual Local Governments Borrowed Increasingly in Foreign Currency

Local governments joined the example of increased foreign currency borrowing set by households and (nonfinancial) enterprises, as chart 11 illustrates. Foreign currency-denominated loans taken out by local governments

boomed especially from 1998 on; in the second quarter of 2003, this trend stabilized. At the end of February 2004, 8.5% of loans extended by domestic banks to local governments were not denominated in euro. In absolute terms, however, local government borrowing in foreign currency amounted to only EUR 1.1 billion at the end of February 2004, which is fairly modest compared with the volume of loans taken out by households and enterprises (totaling EUR 44.74 billion). Therefore, foreign currency borrowing by local governments does not pose a risk to financial stability.

The data available suggest, however, that there are some local governments, especially in Vorarlberg, but also in Tyrol and Burgenland, whose share of foreign currency loans in total loans is in fact considerable (in some cases more than 40%). These entities should be aware of the underlying exchange rate risk and of the exemplary effect their borrowing behavior may have on households.

Market Risk

Slightly Higher Interest Rate Risk Exposure Recently

The "Basel ratio" for interest rate risk – defined as the ratio of the hypothetical decline in a bank's economic value in response to an interest rate change by 200 basis points to its eligible regulatory capital – of the 32 large and medium-sized banks that have reported this ratio since 2001 (which account for 73% of Austrian banks' aggregate total assets) edged up from 7.9% to 8.4% on average in the second half of 2003 (end-2002: 8.9%). Chart 12 shows the distribution of the Basel ratio for interest rate risk of these 32 banks in mid-2003 and at the end of 2003. The slight increase of the average ratio is essentially attributable to the lower share of banks with little interest rate risk exposure (below 5%) and an increase in the number of banks with a slightly higher interest rate risk exposure (between 5% and 10%).

Chart 12

Distribution of the Basel Ratios for Interest Rate Risk Reflects

Slight Rise in Interest Rate Risk Exposure

Number of banks

2nd quarter 2003
4th quarter 2003
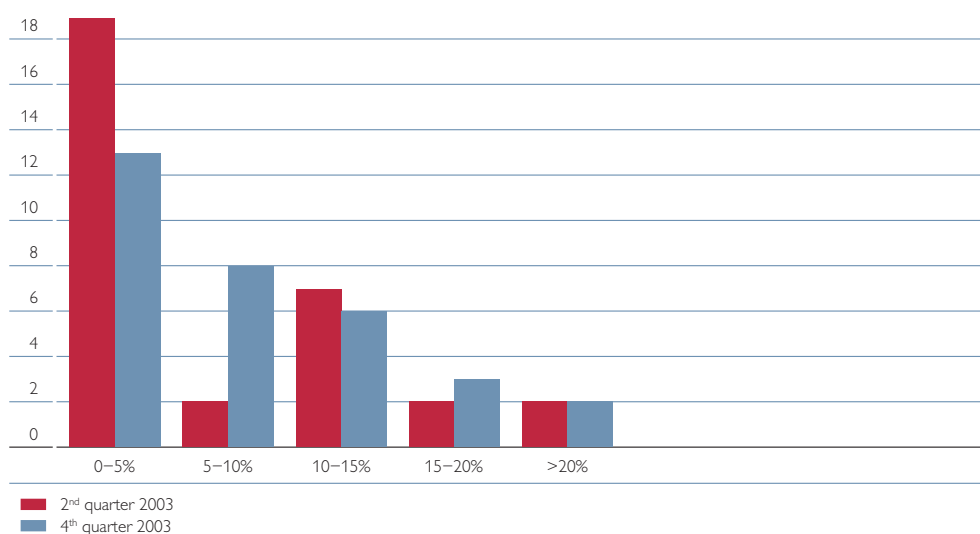
Source: OeNB.

Within the entire Austrian banking sector, the average Basel ratio for interest rate risk inched up from 9.7% to 10.1% in the second half of 2003.

The data on the capital requirement for the position risk in interest rate instruments of the securities trading book also suggest that the Austrian banking sector's exposure to interest rate risk has increased somewhat. Rising from EUR 420 million to EUR 470 million in the second half of 2003, up from the historic low recorded in the previous two years, this value indicates that interest rate trading has been livelier recently.

No Significant Increase in Exposure to Equity Price Risk

Within Austrian banks' securities portfolios, the percentage of shares held neither as participating interests nor as shares in affiliated enterprises, which reflect banks' tendency to invest in tradable equity, remained at its historic low of 2.3% in the second half of 2003.[15] The book-to-market ratio of these shares fell – for both domestic and foreign paper – from 98% to 91% during 2003, with book values totaling EUR 1.5 billion at the end of 2003. Austrian equity accounted for 51% of total stocks. By contrast, the book values of shares which are participating interests or shares in affiliated enterprises totaled EUR 13.3 billion at the end of 2003.

The capital requirement for equity positions of the trading book, which is an indicator of banks' exposure to equity price risk, rose from EUR 25.0 million to EUR 28.4 million in the second half of 2003. Given the usual fluctuations of this value, this represents only a small increase to a level that is still below the long-term average.

Subsidized Personal Pension Plans and

Capital Guarantee Provisions

According to article 108h paragraph 1 item 3 of the Income Tax Act, providers of subsidized personal pension plans (Zukunftsvorsorge) have the statutory obligation to provide a capital guarantee. Specifically, they must guarantee that upon maturity the nominal value of the plan assets will equal at least the original amount invested plus the accumulated state subsidies. The capital guarantee is meant to cover the risk of asset price changes, which results above all from the statutory provision that at least 40% of contributions must be invested in stocks at the Wiener Börse (or at the stock exchanges of the new EU Member States). By 2012 a comparatively high amount of assets accumulated under the subsidized personal pension scheme will thus have been invested in stocks listed at the Wiener Börse (11.2% to 16.5% of the free float in relation to market capitalization as at September 30, 2003[16]). This creates the danger that stock prices might fall should a large number of contracts mature at the same time. Consequently, the related market risk is the predominant source of uncertainty in the capital guarantee scheme.

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[15] *In addition to equity, debt securities, other fixed-interest securities and mutual fund shares are included in the securities portfolio. The share of equity refers to book values.*

[16] *Simulation based on two scenarios assuming a market potential of 450,000 or 600,000 contracts issued by 2007 and 2008, respectively, an annual investment of EUR 870 or EUR 1,000 (indexed for an inflation rate of 1.5%) and an average nominal yield of 5% p.a. including the state subsidy (see Financial Stability Report 6, p. 58–59). The simulation assumes that the share of assets invested in stocks listed at exchanges of the new EU Member States will continue to remain small until 2012 as the underlying risks and the corresponding capital guarantee costs will be higher than in Austria. The bandwidth reflects the different assumptions regarding market growth on which the two scenarios are based.*

Most providers of Zukunftsvorsorge plans buy the required capital guarantee from banks. By assuming capital guarantees, banks also increase their exposure to market risk, which in turn has a bearing on the stability of the financial system. Judging from market prices, the cost of the capital guarantee is estimated to average 0.8% p.a. of the insured amount.[17] Based on the simulation referred to above and on the assumption that the state subsidy averages 9.5% p.a., the capital guarantee will cost pension plan members between EUR 150 million and EUR 224 million on balance until 2012.

However, according to their prospectuses, providers may pass on even higher costs of the capital guarantee (1.5% up to 3.0% p.a. of plan assets) to pension plan members. In this respect it is not clear whether investors would be billed ex post for actual costs only, or for the potential upper limit stipulated in the contracts. Depending on the method applied, the difference may amount to as much as 2.2% p.a.

The comfort of the capital guarantee could prompt providers to go for riskier instruments (moral hazard) as they may transfer the risk to the guarantor (banks). With a view to delimiting their risks, guarantors therefore tend to impose investment constraints on providers, such as asset allocation limits and recourse clauses, or they demand regular consultations about the risk features of the investment strategy. In many cases, the owners of the guarantor banks in fact have close links with the pension scheme providers.

Technically, the capital guarantee resembles a put option. Since the price of an option rises as volatility increases, the pension plan members stand to benefit from a risky investment strategy, given that capital losses will be cushioned by the capital guarantee to some extent.

Furthermore, numerous fees that are payable on plan assets and therefore reduce the accumulated payout affect the risks and costs associated with the capital guarantee.[18] In addition to the cost of the latter, a subsidized personal pension plan generates administrative fees (ranging between 1.5% and 2.0% p.a. of plan assets) and custody fees (approximately 0.2% for the provider and approximately 0.1% p.a. for the pension plan member); this brings the charge for members up to a range of 2.5% to 3.5% p.a. of assets. Measured as a percentage of the nominal yield of 5% p.a. assumed in the simulation, or as a percentage of the nominal yield of 6.9% that pension funds actually achieved in the period from 1990 to 2003, total costs range between 36% and 70%.

As the target group for subsidized personal pension schemes is comparatively wide, the fee structure – including the methods of calculating the cost of the capital guarantee – must be transparent for clients. This would enhance market transparency for market participants, which is one of the goals of the Austrian Code of Corporate Governance (2002).

Declining Exposure to Direct Exchange Rate Risk

Using the capital requirements for open foreign exchange positions as an indicator of the Austrian banking sector's exposure to direct foreign exchange risk,[19] it can be concluded that the risk exposure has declined. At the end of 2003, capital requirements in this area decreased to a historic low of EUR 55 million (mid-2003: EUR 82 million). The peaks of the open foreign exchange positions in the individual currencies during December 2003 also reflect banks' increased efforts to keep a tighter lid on open positions and thus reduce their direct exchange rate risk. The sum of all banks' monthly peaks of open foreign exchange positions in all reported currencies came to EUR 2.8 billion in December 2003 against EUR 3.6 billion in June 2003.

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[17]   *The insured amount equals total contributions plus accumulated state subsidies.*

[18]   *The higher the fee is, the higher is the nominal yield required to secure the guaranteed capital stock and the higher is the probability that the risk materializes.*

[19]   *The direct exchange rate risk is the risk of a diminution in value of a bank's on- and off-balance sheet items caused by exchange rate changes.*

Risks Incurred Through Business in Central and Eastern European Countries[20]

Business Activity and Profitability of Subsidiaries in Central and Eastern Europe[21]

The CEE subsidiaries have continued to reinforce their role in their Austrian parent banks' business. At the end of 2003, ten Austrian banks operated subsidiaries in 13 Central and Eastern European countries. Total asset growth recorded by these subsidiaries regained momentum recently, increasing from 4.9% in the first half of 2003 to 7.6% in the second half. In other words, the CEE subsidiaries' total assets expanded by EUR 8.8 billion to EUR 76.6 billion during 2003; at 12.9%, the annual growth rate was only slightly below the 2002 rate (16%). The balance sheet structures reflect a decrease in claims on banks and an increase in claims on nonbanks during 2003: While the share of claims on nonbanks in total assets climbed from 47% to 51%, the share of claims on banks contracted from 19% to 14%; the share of other assets edged up by 1 percentage point to 35%.

Compared with 2002, the CEE subsidiaries' operating profit[22] rose by 18.1% to EUR 1.4 billion in 2003. The subsidiaries thus accounted for 18% of their ten parent banks' total assets and 38% of their operating profit. One year earlier, the CEE subsidiaries provided 16% of total assets and 35% of operating profit of a total of six parent banks. A comparison of cost-income ratios also mirrors the subsidiaries' higher profitability. While the subsidiaries posted a cost-income ratio of 61.8%, their parent banks recorded no less than 70.1%, not taking into account the shares of their subsidiaries.

Credit Exposure vis-à-vis Central and Eastern Europe Continued to Rise

Austrian banks' credit exposure vis-à-vis Central and Eastern Europe has two components: first, loans extended by the subsidiaries of Austrian banks operating in the region (*indirect loans*) and second, loans made to borrowers in the region by banks resident in Austria (*direct cross-border loans*). Table 5 shows the volumes of unsecuritized direct and indirect loans to nonbanks as at December 31, 2003.[23]

Of the total volume of direct cross-border loans shown in table 5 (EUR 52.4 billion), 31.4% (EUR 16.5 billion) went to Central and Eastern Europe. While the volume of direct loans made to the rest of the world remained virtually unchanged in the second half of 2003, the CEECs accounted for a growth rate of 12% (or EUR 1.7 billion). The volume of direct loans to the new EU Member States in CEE expanded by 14% (EUR 1.4 billion), with Poland and Hungary posting the highest growth rates (22% or EUR 0.4 billion and 17% or EUR 0.3 billion, respectively). Cross-border loans to the

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[20] This chapter covers developments in the 13 Central and Eastern European countries in which Austrian banks operated fully consolidated subsidiaries as at December 31, 2003.

[21] On the basis of quarterly reports on condition and income, which Austrian banking groups have submitted since early 2002. These reports include selected positions from the consolidated balance sheets and profit-and-loss accounts of the parent banks and the fully consolidated foreign subsidiaries.

[22] Operating income less operating expenses.

[23] The data sources used and the resulting limitations of the figures given are described in the OeNB's Financial Stability Report 6.

remaining CEECs increased by 7% or EUR 0.3 billion.

Growing by 19% (or EUR 5.7 billion) to EUR 35.5 billion in the second half of 2003, indirect loans made by CEE subsidiaries expanded even more rapidly than direct cross-border loans. At 25% (or EUR 1.9 billion), the rise was more pronounced in those countries of the region that have not joined the EU than in the new EU Member States (17% or EUR 3.8 billion). As mentioned above, this vigorous growth is attributable to the general growth dynamics of the subsidiaries operating in CEE and the structural expansion of their retail business. Furthermore, in a number of cases the parent banks resident in Austria increased their equity in the subsidiaries.[24]

Direct and indirect loan exposures taken together made up a total foreign exposure of EUR 91.3 billion, of which Central and Eastern Europe accounted for 56.9% (EUR 51.9 billion) at the end of 2003, almost 4 percentage points more than in the first half of 2003. Within CEE, the new EU Member States accounted for as much as 72.4% of Austrian banks' exposure to the region at the end of 2003, half a percentage point below its level in the first half of the year.

Table 5

Credit Exposure in Central and Eastern Europe Increased Recently

As at December 31, 2003	Total foreign exposure																
		Central and Eastern Europe												Rest of the world			
		EU Member States							Non-EU Member States								
				CZ	HU	PL	SK	SI		HR	RU	RO		DE	USA	CH
Country rating[1]				A1	A1	A2	A3	Aa3		Baa3	Baa3	Ba3		Aaa	Aaa	Aaa
EUR billion Direct loans[2]	52,4	16,5	11,7	3,7	2,3	2,4	1,1	2,1	4,8	2,7	0,8	0,6	35,9	8,0	4,7	4,1
% Share in total foreign exposure		31.4	22.4	7.1	4.5	4.6	2.1	4.1	9.1	5.2	1.5	1.0	68.6	15.3	9.0	7.8
EUR billion Indirect loans[3]	38,9	35,5	25,9	10,3	5,5	5,4	3,4	1,3	9,6	5,1	0,9	1,1	3,5	0,2	×	0,0
% Share in total foreign exposure		91.1	66.4	26.4	14.1	13.8	8.8	3.3	24.6	13.0	2.3	2.8	8.9	0.4	×	0.1
EUR billion Total	91,3	51,9	37,6	14,0	7,8	7,8	4,5	3,4	14,4	7,8	1,7	1,7	39,4	8,1	4,7	4,1
% Share in total foreign exposure		56.9	41.1	15.4	8.6	8.5	5.0	3.7	15.7	8.6	1.9	1.8	43.1	8.9	5.2	4.5

Source: OeNB, Moody's Investors Service.
[1] *Moody's rating of long-term government bonds denominated in foreign currency.*
[2] *Unsecuritized loans made by Austrian banks to foreign nonbanks.*
[3] *Unsecuritized loans made by subsidiaries of Austrian banks to nonbanks.*

Risk-Bearing Capacity
Capital Ratio Improved Significantly
An analysis of capital adequacy – a key indicator of banks' risk-bearing capacity – shows that Austrian banks' capital ratios improved notably over recent months. Even though in the past Austrian banks' unconsolidated

[24]   As was the procedure applied in Financial Stability Report 6, the volumes of indirect loans are weighted according to the equity held by the parent bank.

Chart 13

Capital Adequacy Improving Further

Source: OeNB.
Note: See footnote 25.
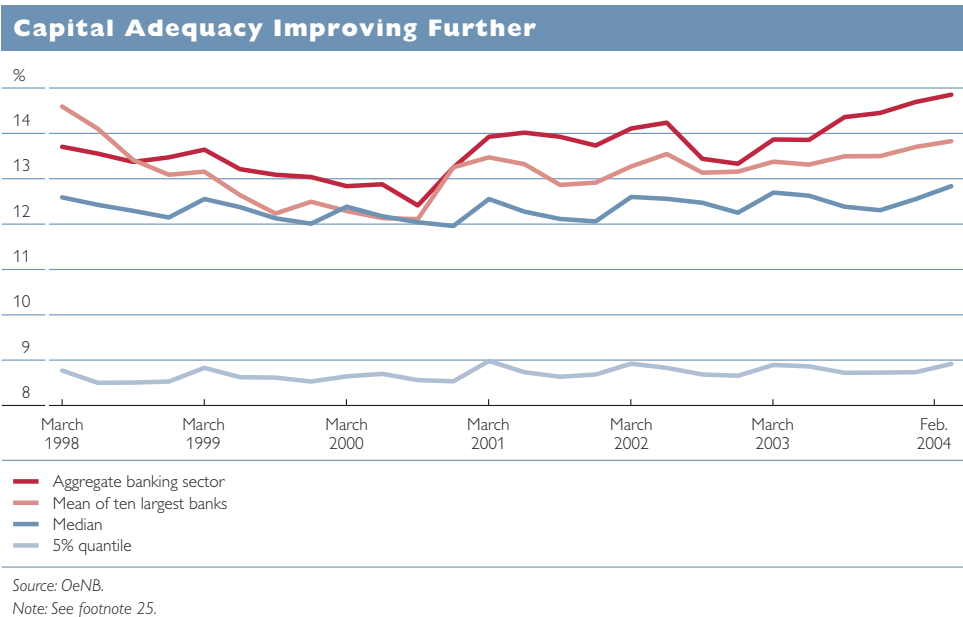
capital ratio[25] had already been higher than the minimum capital requirement of 8%, it increased further, to 14.9%,[26] in February 2004 (against 13.3% in February 2003). In the period under review, capital adequacy thus reached a peak in February 2004 (see chart 13). The capital ratio on a consolidated basis also improved, rising to 12.0% at the end of 2003 (2002: 11.3%).

Higher capital ratios were recorded at the ten largest banks in terms of total assets, at the median as well as across all banking sectors. In February 2004, the mean capital ratio of Austria's ten largest banks came to 13.8%, after 13.5% in the same month one year earlier. At 12.9%, the median bank's capital ratio may have been lower than that of the major banks, but compared with

previous periods, it had increased, too.

A more detailed analysis reveals that on the one hand, the increase in capital at one major bank was a key factor in the overall increase in capital ratios and on the other hand, the share of risk-weighted assets in total assets edged down from 45.3% in February 2003 to 44.2% in February 2004. These two developments led to the change in capital ratios mentioned above.

The capital ratio of the 5% quantile, representing those banks with comparatively poor capital adequacy, was 9% in February 2004, and thus in the range of the long-term average. Put differently, at the beginning of 2004, 95% of Austrian banks reported unconsolidated capital ratios of more than 9%.

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[25]   In this context, the capital ratio refers to the capital eligible as credit risk cover under the Austrian Banking Act (tier 1 capital plus tier 2 capital minus deductible items) as a percentage of the assessment base (according to Article 22 paragraph 2 Austrian Banking Act). The result of this calculation may differ from the capital ratios quoted in other OeNB publications, which usually also include tier 3 capital and are therefore obviously higher. However, as tier 3 capital is subordinated capital that may only be used as capital charge for market risk, it was not included below for the purpose of assessing capital adequacy in relation to credit risk.

[26]   This capital ratio does not include distributed profits for 2003.

Next to the capital adequacy ratio, the tier 1 capital ratio[27] also improved over recent months. For the first time since July 2002, the unconsolidated tier 1 capital ratio of all Austrian banks taken together surpassed the 10% level in February 2004, coming to 10.2%.

All in all, Austrian banks' risk-bearing capacity in terms of capital adequacy, which had already been satisfactory, improved further over recent months.

Preliminary Findings of the IMF Financial Sector Assessment
Program Mission to Austria

In June 2003, Austria started to take part in a voluntary evaluation of its financial sector in the framework of the Financial Sector Assessment Program (FSAP) conducted by the International Monetary Fund (IMF; see Financial Stability Report 6, p.40). The FSAP aims to identify the vulnerabilities of a country's financial system to avoid crises and to determine the priorities for developing the financial sector as well as to enhance financial system efficiency.

During the two 14-day working visits of IMF representatives in Vienna, the assessment encompassed the financial market reforms implemented over the past few years as well as compliance of the new supervisory structures and of supervisory legislation with internationally recognized principles and standards (principles of efficient banking, insurance and securities supervision, combating money laundering and the financing of terrorism). In addition, the stability of the Austrian financial system was examined on the basis of stress tests that had been devised and conducted in cooperation with the OeNB; finally, a range of special issues (e.g. foreign currency loans) were also on the agenda of the mission. Representatives of the Austrian Federal Ministry of Finance, the FMA and the OeNB jointly supported the IMF in the FSAP mission.

The IMF's preliminary findings show that

– *the Austrian financial sector is sound and resilient to shocks, as the stress tests jointly conducted by the IMF and the OeNB confirmed;*

– *the establishment of a single supervisor and the consolidation of supervision in the FMA is in line with high international standards and that cooperation between the FMA and the OeNB is developing well;*

– *the level of compliance with internationally set supervisory standards in the areas of banking, insurance, securities and anti-money laundering is generally high;*

– *the banking sector is profitable, has good capital adequacy ratios and has undergone large-scale restructuring and consolidation over recent years;*

– *the financial sector has been faring well despite the difficult economic environment; and*

– *the early expansion of Austrian credit institutions in Central and Eastern Europe has significantly contributed to strengthening profitability.*

At the same time, the IMF concludes that banks need to take further action to sustain their performance, which recently has been mainly supported by equity earnings from the new Central and Eastern European EU Member States, to increase profitability in the home market (e.g. by additional restructuring and consolidation measures). Furthermore, the IMF recommends that the deposit insurance system be reviewed in the light of the restructuring underway in the banking industry and that corporate governance be further improved. Finally, the IMF advocates measures to strengthen insurances and pension funds as well as the continuous monitoring of potential risks arising from foreign currency loans for lenders and borrowers.

The annual IMF Article IV Consultation from April 29 to May 11, 2004, marked the preliminary conclusion of the FSAP mission. The IMF Board is to discuss the findings in July 2004, the final report is scheduled to be published in summer 2004.

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[27] *The tier 1 capital ratio puts tier 1 capital in relation to the assessment base, thus providing additional information on Austrian banks' capital adequacy.*

Stress Test Results Supported Positive Assessment of Banks' Risk-Bearing Capacity

The OeNB's Financial Stability Reports have repeatedly featured contributions – either in the special topics or in the reports sections – in which stress tests were used for quantitative assessments of the Austrian banking sector's risk-bearing capacity by risk category. Based on these initial analyses, a range of stress tests were devised in the course of the FSAP exercise which capture the Austrian banking system's risk sensitivity towards different risk categories in a consistent manner, thus ensuring comparability of results. It is envisaged that starting with the current Financial Stability Report issue, these stress tests will be conducted regularly in a slightly modified form to facilitate a continuous quantitative assessment of the Austrian banking sector's risk-bearing capacity. To supplement the first comprehensive presentation of stress test results in the Financial Stability Report, the following box provides an outline of the underlying methodology.

Stress Tests for the Quantitative Assessment of the

Banking System's Risk-Bearing Capacity

A stress test measures the impact of an exceptional, though plausible change of one or several risk factors (e.g. a crash of the Austrian stock market with the ATX tumbling by 30%, an appreciation of the Swiss franc by 10%). Applied to banks' risk-sensitive exposures (e.g. domestic equity exposure, open foreign exchange positions in Swiss francs), this crisis scenario triggers a loss (or profit) which, in turn, reduces (or raises) banks' capital ratios. For each of the stress tests described below, we calculated the (unconsolidated) capital ratios of the Austrian banking sector resulting from the respective crisis scenarios and compared them with the capital ratios reported at the end of 2003.

Our stress tests for credit risk covered the three main components of credit risk Austrian banks are exposed to: credit risk of claims on domestic nonbanks, credit risk of claims on CEE nonbanks and indirect credit risk of foreign currency loans to domestic nonbanks.

The scenario underlying the stress tests for domestic credit risk conducted in the framework of the FSAP assumes a prolonged recession in 2000. In a first step, we simulated the impact of this crisis scenario on the Austrian economy in 2003 using the OeNB's macroeconomic model. The result was an annual GDP growth rate some 1 percentage point below actual GDP growth. On the basis of a regression model which explains the change of loan loss provisions as a ratio of loans outstanding that is induced by the change in GDP growth, we arrive at a crisis scenario with a rise in the loan loss provision ratio by 30% as displayed in table 6. As regards Austrian banks' credit exposure in Central and Eastern Europe, we assume a 40% increase in the loan loss provision ratio, which roughly corresponds to the maximum rise seen in the respective countries over the past five years. This scenario covers both the loans made by Austrian banks to customers in these countries and the (indirect) loans made by their subsidiaries. The stress test for indirect credit risk of claims denominated in Swiss francs and Japanese yen is based on the assumption that the rise in the volume of loans outstanding in euro following an appreciation of the currency the loans are denominated in is equivalent to an income loss in the same amount. Under this assumption, we can use the regression model which explains the change of the loan loss provision ratio induced by the change in GDP growth – which we take as an approximation for the change in annual income – to calculate the impact of an exchange rate shock on loan loss provisions and thus on the capital ratio. On the basis of historically observed maximum exchange rate fluctuations within one month we assumed an appreciation of the Swiss franc by 10% and of the Japanese yen by 20%. In a worst-case analysis, we also assess the accumulated impact of all three components of credit risk on the Austrian banking sector's capital ratio. For this purpose, we included Swiss franc- and Japanese-yen denominated loans only in the stress test for foreign currency loans to avoid double counting.

The stress tests for market risk covered interest rate risk, equity price risk and exchange rate risk. All scenarios shown in table 6 were calculated on the basis of the historically observed maximum changes in the relevant risk factors within one month. As to interest rate risk, we examined various movements of the yield curve for the euro, the U.S. dollar, the Swiss franc and the Japanese yen; the loss in this scenario results from the decline in the economic value due to a revaluation of the net positions of all interest rate-sensitive on- and off-balance sheet positions in the maturity bands used in the interest rate risk statistics. We took into account both parallel shifts and tilting yield curves. Due to lack of space, however, table 6 shows only the results with the largest negative effects on the capital ratio. The stress test for equity price risk comprises all positions in quoted equity (due to the nature of reporting, on-balance sheet positions, i.e. long positions, only). The stress test for exchange rate risk is based on the reported open foreign exchange positions. It includes both on- and off-balance sheet positions in the twelve most important international currencies (no Central and Eastern European currencies are included for reporting reasons). Table 6 shows the result of a stress test for a given worst-case estimation. In this estimation, the absolute values of all Austrian banks' open foreign exchange positions in all currencies were cut by 10% each and the banks' capital was reduced accordingly. Thus, the underlying scenario may involve an appreciation as well as a depreciation of one and the same foreign currency, depending on the bank. The crisis scenario underlying this stress test is therefore not realistic; rather, it is a worst-case estimation in relation to arbitrary fluctuations of all foreign currencies by up to 10%.

Table 6 summarizes the results of the stress tests for the aggregate Austrian banking sector. One of the key findings was that thanks to its high capitalization, the Austrian banking system is comparatively resilient to external shocks. The aggregate Austrian banking sector's capital ratio was 14.45% at the end of December 2003.

The stress test results indicated that in the scenarios analyzed adverse macroeconomic and market conditions would not jeopardize the stability of the system. As expected, the largest impact on the capital ratio was observed in the stress tests for credit risk. The worst-case scenario, in which the accumulated impact of all three components of credit risk were assessed, saw the capital ratio drop by 1.38 percentage points to 13.06%; this was the largest impact on the aggregate capital ratio observed in the entire test series. Within this accumulated analysis, the stress test for domestic credit risk led to the sharpest reduction in the capital ratio. By comparison, the impact observed in the stress tests for credit risk exposure to CEE was significantly smaller, and even the indirect credit risk of foreign currency loans changed the capital ratio only to a small extent in the aggregate. It should also be noted, however, that the stress tests for foreign currency loans at the level of individual banks showed a decline of the capital ratio to below 8% for a few very small banks (CHF: 7, JPY: 1); this result can be considered to be systemically irrelevant, though, since the banks concerned together account for no more than 0.3% of the Austrian banking sector's aggregate total assets.

In the stress tests for market risk, only a parallel upward shift of the euro yield curve by 130 basis points led to a significant decline of the capital ratio (by 0.61 percentage point to 13.84% in the aggregate). The interest rate risk scenarios in all other currencies reduced the aggregate capital ratio by less than 10 basis points. Even a 30% decline in stock prices would diminish the capital ratio by no more than 16 basis points (domestic equity exposure) and 22 basis points (foreign

Table 6

Stress Test Results – Risk-Bearing Capacity of the Banking Sector Satisfactory

Stress Test Scenario	%			Capital ratio
Current capital ratio				14.45
Credit risk				
Domestic credit exposure				
Increase in the ratio of loan loss provisions to loans outstanding by	+30			13.57
Credit exposure in Central and Eastern Europe				
Increase in the ratio of loan loss provisions to loans outstanding by	+40			14.16
Foreign currency loans	+10			
Appreciation of the Swiss franc against the euro by				14.17
Appreciation of the Japanese yen against the euro by	+20			14.28
Accumulated credit risk				
Aggregate analysis of all three credit risk components[1]				13.06

Market risk	Basis points			Capital ratio
Interest rate risk	short-term	medium-term	long-term	
Euro *Upward parallel shift of the yield curve*	130	130	130	13.84
U.S. dollar *Upward parallel shift of the yield curve*	110	110	110	14.41
Swiss franc *Upward parallel shift of the yield curve*	150	150	150	14.40
Japanese yen *Downward shift of the yield curve[2]*	−20	−40	−130	14.39

	%			Capital ratio
Equity price risk				
Crash of the Austrian stock market, ATX falling by		−30		14.29
International stock market crash, international stock indices falling by		−35		14.23
Exchange rate risk				
Worst-case estimation[3]: appreciation/depreciation of the euro by		±10		14.34

Source: Own calculations on the basis of data reported to the OeNB.

[1] Increase in the ratio of loan loss provisions to loans outstanding by 30% for claims on domestic nonbanks in euro and by 40% for direct and indirect claims on CEE nonbanks as well as an appreciation of the Swiss franc by 10% and of the Japanese yen by 20%.

[2] The Japanese yen was not assumed to undergo a parallel downward shift to avoid a scenario with negative interest rates.

[3] Decline in the absolute values of all banks' open foreign exchange positions in the twelve most important currencies (excluding Central and Eastern European currencies).

equity exposure). Finally, the stress tests for exchange rate risk confirmed that except for the euro interest rate risk, market risk had minor effects on capital ratios. In the worst-case estimation concerning an appreciation or a depreciation of the euro the aggregate capital ratio dropped by only 10 basis points. Hence, in stress tests for individual currencies, which were not included in table 6 due to lack of space, the impact on the capital ratio was even smaller.

To sum up, the results of the stress tests suggest that Austrian banks' risk-bearing capacity can be considered satisfactory, which is most likely attributable mainly to the high capitalization of the Austrian banking system.

The findings apply to the Austrian banking system as a whole and do not provide an indication of the situation of individual banks. While the analyses presented here can also be conducted for individual institutions, for data protection reasons it is not possible to publish such results. What can be pointed out, however, is that there are in fact banks which, due to their risk exposure, in certain stress tests posted substantially worse results than the aggregate sector.

Other Financial Intermediaries

Insurance Companies

The overall performance of the insurance industry was satisfactory in 2003, which was essentially attributable both to the absence of large claims payments and to positive financial market sentiment. Across Europe, shares issued by insurance companies took a particularly positive course, especially

during the second half of 2003, thus continuing the uptrend which began in the first half of 2003 and which is also reflected in the Dow Jones EURO STOXX Insurance Index. Putting an end to the prolonged downtrend during which the index plunged to a level of around 30% of its 2000 peak value, the 2003 trend reversal took place in a market environment conducive to the entire sector of financial intermediation. Since January 2003, price developments in the prime segment of insurers listed on the Vienna stock market have reflected this upswing.

Austrian Insurance Companies Also Experienced Uptrend in 2003

In line with the international trend, Austrian insurance companies performed well in 2003. The provisional annual results of the major Austrian insurance companies show that gross premiums went up – in some cases significantly – for life, property/casualty and health insurances; the growth rates recorded in the life insurance business in spite of the continual marked decline in one-off payments are traceable, above all, to Austrians'

still increasing awareness of the necessity of making private provisions. The growth in gross premiums had a positive effect on profits, a development which was supported by the continued strong presence of Austrian insurance companies in Central and Eastern European markets and a positive financial market situation. However, if insurers wish to sustainably strengthen their profitability, they will have to improve their underwriting result both in Austria and abroad to fend off potential price risks in stock and bond markets. Moreover, accounting for the change in capital market conditions, financial regulators reduced the guaranteed interest rate in life insurance schemes from 3.25% to 2.75% as of January 1, 2004.

Year on year, the aggregated assets (excluding reinsurance transactions) of the altogether 62 Austrian contractual insurance companies augmented by EUR 2.7 billion to EUR 61 billion. As previously, aggregated assets went up mainly because external assets and equity securities as well as other domestic securities (including participating interests) augmented while

External Assets and Equity Securities Continued to Expand

EUR billion

Legend:
- Deposits with Austrian banks
- Equity securities and other domestic securities
- Real estate
- Other assets
- Domestic debt securities
- Loans
- External assets

Source: OeNB.
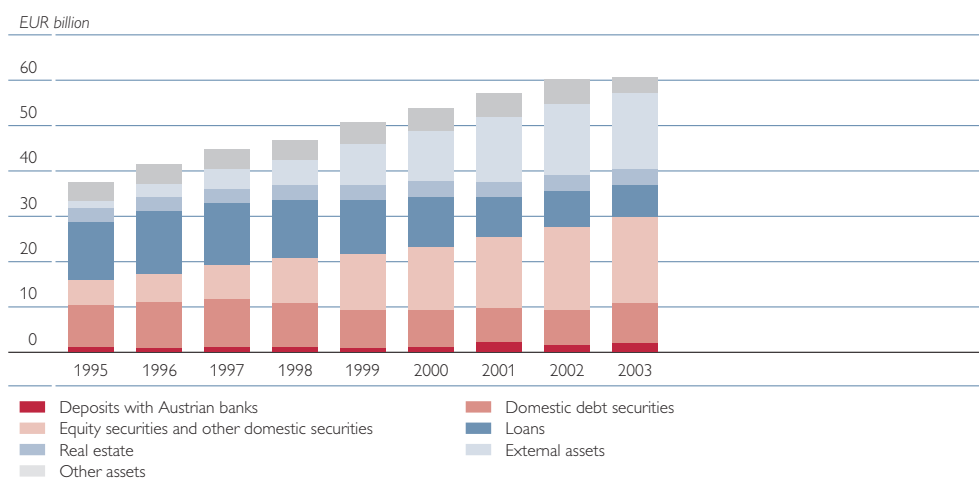
lending subsided. This development confirms a steady trend observed since 1995 (see chart 14). While in the second half of the 1990s, loans and domestic securities had been the most important types of investment, external assets and equity securities as well as other domestic securities have now taken the lead. The strong year-on-year decline in credit to the government (−7.7% for domestic government debt securities and −12.1% for loans to the government) on the assets side of the balance sheet also deserves particular attention.

No Risks of Contagion for Domestic Banking Sector

With regard to the contagion risk for the domestic banking sector, it can be noted that insurance companies have stepped up their investment with domestic banks compared with the previous year. The slight rise in domestic debt securities vis-à-vis 2002, for example, is mainly attributable to the 24% growth of debt securities issued by credit institutions. Investments made in the form of deposits with banks (+30%) and loans to banks (+87.1%) were also dynamic, with total investment with banks coming to around EUR 8.8 billion (14.1% of assets); this corresponded to an increase by 2.4 percentage points against end-2002 and a marked slowdown, in the second half of 2003, of a trend that had been clearly stronger in the first six months of the year. The year-on-year increase is put into perspective, however, when relating these EUR 8.8 billion worth of investments by insurance companies to the total assets of the Austrian banking sector (EUR 605 billion). Moreover, as the credit risk transferred from the bank-

ing sector to the insurance sector via financial instruments (e.g. credit default swaps) is rather low in Austria, no contagion risk is to be expected from this direction, either.

On the liabilities side of the balance sheet, insurance technical reserves play a major role (as expected), accounting for a share of around 88% and thus remaining almost unchanged against the first half of 2003. Property/casualty insurances and health insurances accounted for relatively low shares in insurance technical reserves (17.6% and 5% respectively) compared with life insurances.

Mutual Funds

The amendment to the Mutual Funds Act that entered into force on February 13, 2004, transposes the relevant EU directives[28] into Austrian law and provides a new legal framework for the operation of management companies in Austria. The new "European passport" enables every management company registered in an EU Member State to operate mutual funds in Austria. Moreover, the amendment lays down a number of new rules to improve consumer protection and introduces the concept of a simplified prospectus, which will strengthen investor protection by providing for more accessible and comprehensive information.

Mutual Funds Continue to Expand

In 2003, the volume of funds managed by Austrian investment companies augmented by EUR 8.3 billion to EUR 111 billion. This rise can be explained both by significant capital gains to the tune of EUR 5.89 billion and positive net inflows of funds, even if these were lower than in the previ-

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[28] See Directive 2001/107/EC and Directive 2001/108/EC.

ous year. Mutual funds performed well throughout 2003; the capital-weighted average total performance of all Austrian mutual funds (retail funds and institutional funds) posted a 5.5% rise – not least due to the positive capital market sentiment. As to the investment structure of funds, the share of foreign securities has gone up significantly (from 67.8% to 71.8%), while general stock price developments have also boosted the importance of equity securities (shares and mutual fund shares).

In this respect, Austria is in line with the international trend, even if the volume of mutual fund assets has grown at a slightly weaker rate in relative terms. In the U.S.A. in particu-lar, at USD 7,400 billion, the volume invested in mutual funds came close to a historical high in December 2003 despite the turbulences caused by government investigations in the mutual fund industry in that year.[29] What is striking from an international perspective is that equity funds are gaining importance while money market funds are becoming less significant. Clearly, the search for yield has intensified also in the mutual funds segment. Quite in contrast to the international trend, the volumes invested in Austrian money market funds went up in 2003; however, this rise is mainly attributable to the activities of institutional investors.

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[29]   See Reid, B. et al. 2004. *Mutual Fund and Economic Developments in 2003. In: Investment Company Institute Perspective 10 (1). March 2004. 1–28.*

Nonfinancial Corporations

High Investment Demand in 2003

While real GDP growth was weak at 0.7% in 2003, real investment demand rose by 4.6% in this period. To a large extent, this was attributable to a catching-up effect, i.e. demand for replacement investment accelerated in the wake of declining investment growth rates in 2001 and 2002. Moreover, temporary tax incentives – subsidies on investment that exceeded the average investment level of the previous three years – and public infrastructure spending had a stimulating effect. Overall, the amount of investment that could be financed from internal cash flow was maintained at 2002 levels. The manufacturing industry, for instance, reached a cash flow ratio of 11.0% in 2003 according to preliminary estimates by WIFO, the Austrian Institute of Economic Research.

Any assessment of how investment demand may develop in 2004 is complicated by numerous uncertainties.

The recovery of the European economy remained weak, and the appreciation of the euro against the U.S. dollar as well as price increases for major commodities dampen businesses' propensity to invest. The latest WIFO Investment Survey indicates that the manufacturing industry, the key production sector, has been cutting investment expenditure. The OeNB economic outlook of June 2004 expects real investment growth to come to 3.3% in 2004.

Need for External Financing Increased

In 2003 the volume of external corporate financing rose to EUR 18.2 billion, from EUR 10.0 billion in 2002. The higher share of equity financing reflects valuation gains that stem from the rise in market capitalization in 2003.[30] With the average dividend yield hitting 2.12% in 2003, the lowest level since 1998, it became more attractive for companies to raise risk capital.

Chart 15

Cost of Equity Financing Decreased as Market Capitalization Increased in 2003

% p. a. · *Jan. 2, 1991 = 1,000*

Legend:
— Average dividend yield
— ATX (right-hand scale)
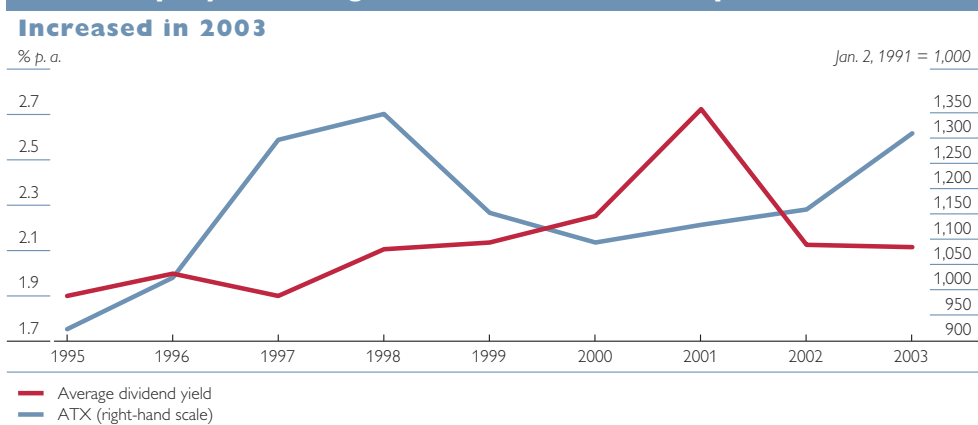
Source: Wiener Börse AG.

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[30]   *Market capitalization reflects the development of the ATX (Austrian Traded Index), which is currently composed of 20 corporations operating in the production and service industries and in the field of banking and insurance. Using stock price developments as an indicator of the capital position of the economy as a whole presupposes that the equity of unlisted corporations is valued at market prices.*

Loan interest rates dropped for both new business and outstanding amounts in 2003.[31] At the same time, the higher share of equity in firms' capital structure enhanced the value of equity available to back loans and thus firms' creditworthiness, which also fed through to risk premiums.[32]

The spread between interest rates on corporate loans and the rate for five-year interest rate swaps[33] has narrowed significantly from the middle of 2003 after having widened continually from mid-2002. In early 2004, risk costs rose again somewhat.

Chart 16

Declining Risk Costs Supported Loan Demand

Source: OeNB.

Note: Interest rate spread: Differential between interest rates on commercial loans and the rate for five-year interest rate swaps. From January 2003: MFI interest rate statistics for Austria.

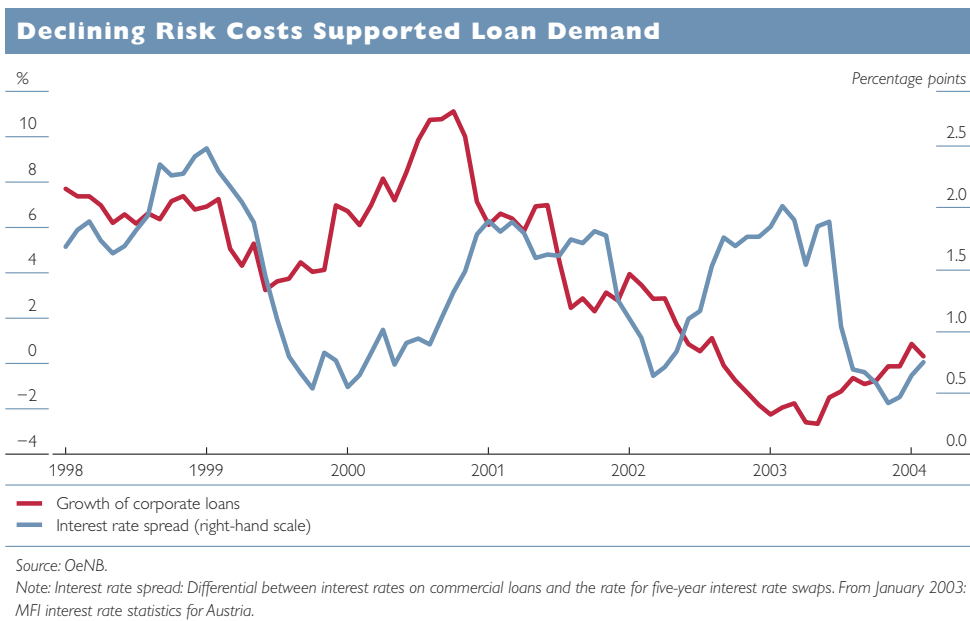On balance, falling capital costs enabled businesses to stabilize their liquidity conditions against the background of moderate profit growth. This gave firms more financial room for maneuver amid the overall weak growth in 2003. At the same time, the changes in capital costs in 2003 show that financial markets have become more optimistic about corporate profitability and indebtedness as well as about the general economic outlook.

More Capital Raised Abroad

Notwithstanding the favorable financing conditions, businesses' propensity to borrow has not risen significantly. To some extent, the low borrowing levels also reflect banks' more cautious lending policies, as evident from recent results of the Bank Lending Survey for Austria. Annual loan growth was even negative in 2003. At the beginning of 2004, lending to businesses inched up again somewhat, however. This stagnation in bank lend-

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[31] In addition, bond yields were at a low level in 2003 (see the section on corporate bond developments).

[32] The appreciation of the euro against major debt currencies also contributed to the improvement of corporate balance sheets. Valuation gains caused the foreign currency liabilities of nonfinancial corporations to drop by EUR 1.4 billion in 2003.

[33] The rate for interest rate swaps between banks includes only small credit risk premiums. Consequently, the gap between interest rates for corporate loans and swap rates is an indicator of the risk that banks incur when extending a loan to companies.

Chart 17

Share of Foreign Loans on the Up Since the Introduction of the Euro

EUR billion   %

- Foreign loans
- Domestic loans
- Share of foreign loans in total loans (right-hand scale)

Source: OeNB (financial accounts).
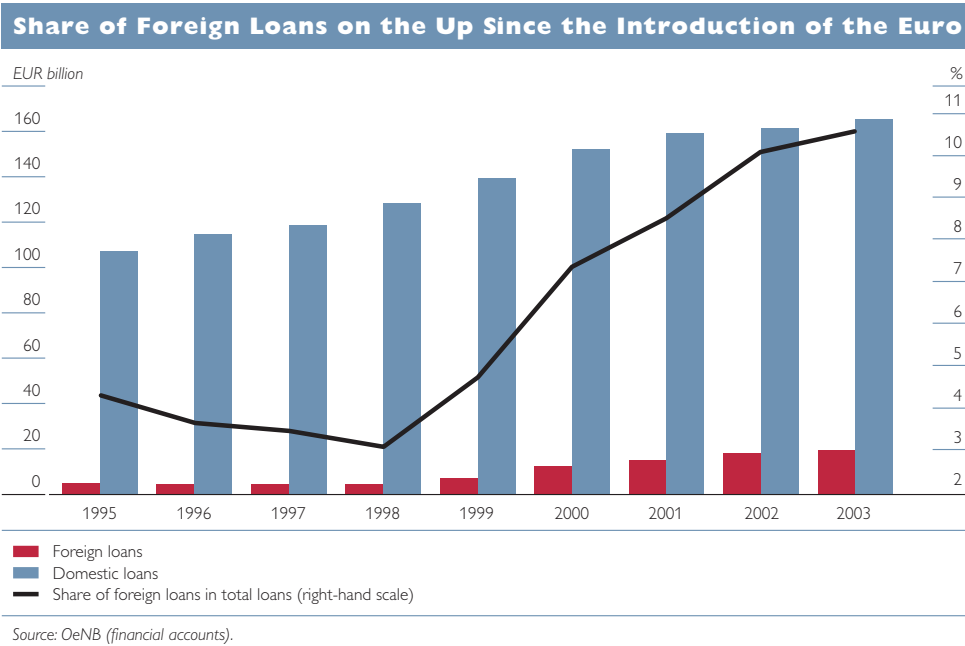
ing is without parallel in a long-term comparison.[34]

Since the introduction of the euro, nonfinancial corporations have increasingly raised funds abroad. Between 1999 and 2003 the share of foreign loans in total loans to businesses increased from 4.8% to 10.5%. To some extent, this is attributable to the growth of intercompany loans amid the surge in foreign direct investment. Such loans do not qualify as loan financing proper, but as liabilities of the domestic subsidiary to the foreign parent company. The implication of such financial relations for financial stability in Austria is that they cause the debt risk to be transferred, to some extent, from the domestic economy to foreign economies.[35]

More Bankruptcies despite Declining Debt/Equity Ratio and Lower Interest Expenditure

Financing conditions have improved for businesses in recent months. In addition to the low level of interest rates, the declining debt/equity ratio has caused interest expenditure to drop.

In the first quarter of 2004, the number of bankruptcies jumped nonetheless by 15.4% against the same quarter of 2003, according to preliminary estimates by the credit information company Kreditschutzverband. Compared with 2003, when bankruptcies rose by 6.9%, this is a significant worsening. The volume of default liabilities reached approximately EUR 420 million in the first three months of 2004, which corre-

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[34] Only the temporary stagnation in bank lending to businesses in the second half of 1983 comes close to these developments. At the time, annual growth rates did not turn negative, however, as happened between September 2002 and December 2003.

[35] Note that disturbances may spread more rapidly today within the international financial system because of the high degree of integration that has been achieved. Austrian companies with bad credit ratings that default on foreign loans may affect thus financial stability in Austria if their foreign creditors have financial relations with Austria.

Chart 18

Debt/Equity Ratio Continued to Decline

Debt/financial assets ratio
Debt/equity ratio
Interest expenditure in relation to operating profit (right-hand scale)

Source: OeNB (financial accounts), Statistics Austria.
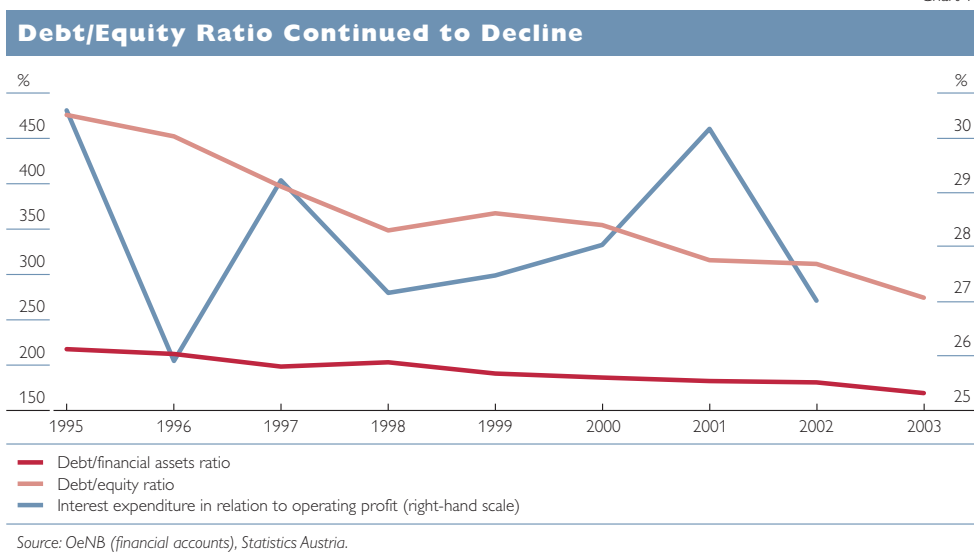
sponds to an increase by 9.2% compared with the corresponding quarter of 2003.

Households

Income Outlook Remained Subdued
According to the OeNB's economic outlook of June, the disposable income of households is projected to grow 1.0% in real terms in 2004, only slightly faster than in 2003. The outlook for income growth has not improved in recent months. Employment is expected to inch up a mere

0.2% in 2004, while the jobless rate (Eurostat definition) stands to worsen from 4.4% to 4.5%. Against this background, consumer demand remains slack. The OeNB projects consumer demand to grow by 1.4% in real terms, more or less as fast as in 2003.

Debt Dynamics Weakened
Household debt grew by 2.8% year on year in 2003, well below the corresponding rate of 2002 (4.5%). At EUR 6.6 billion, interest payments on debt tied up 5% of disposable in-

Chart 19

Debt Growth Slowed Down

Debt
Interest payments on debt (right-hand scale)

Source: OeNB (financial accounts), Statistics Austria.

Chart 20

Low Level of Interest Rates Made Home Loans More Attractive

EUR million

Source: OeNB (financial accounts).
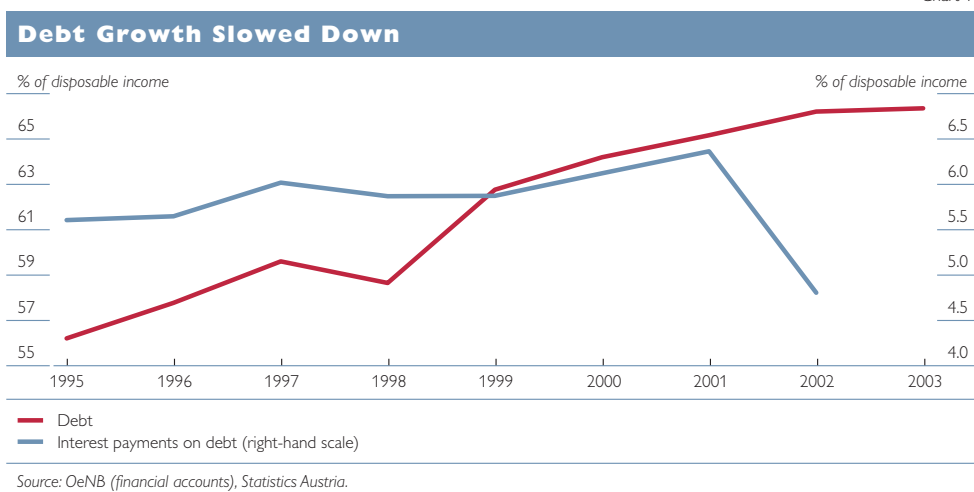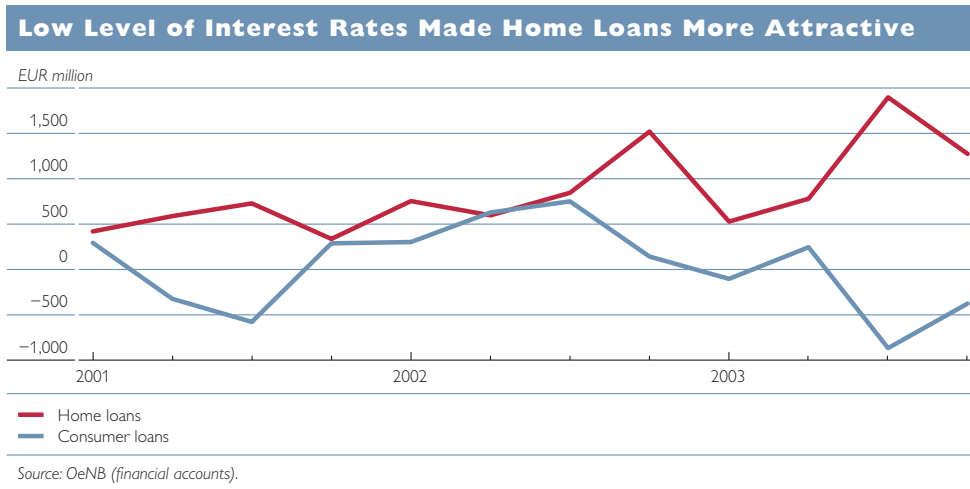
come in 2002, the lowest value since 1995. For 2003, national accounts data have not yet become available, but the downward trend is expected to have continued. As is evident from the MFI interest rate statistics for loans to Austrian households, both interest rates on new business and on outstanding amounts declined. This implies that the drain on incomes from debt servicing continued to decrease significantly and that households were able to set aside more money against potential income losses.

Debt growth was essentially fueled by demand for home loans, which grew by EUR 4.5 billion in 2003, while consumer loan transactions resulted in net redemptions of EUR 1.2 billion. The decrease in outstanding consumer loans reflects households' moderate propensity to spend. At the same time, the low level of interest rates provides an incentive to frontload expensive purchases with long-term financing horizons – a financing behavior that is not without risk given the present uncertain income outlook. After all, debtors who have borrowed heavily may face financial constraints should they suddenly suffer income losses.

Demand for Liquidity Dominated Financial Investment

At EUR 8.0 billion, cash holdings and deposits accounted for the bulk of financial assets that households accumulated in 2003. This development can be attributed to the uncertain economic outlook and the low opportunity costs of holding money. Following price setbacks in national und international financial markets from 2000 to 2002, households have been continually investing less in market-oriented financial instruments, such as long-term securities, shares and mutual fund shares. While in 2000, this category attracted more than half of all financial investment (53.5%), this share was down to 16.2% in 2003.

Chart 21

Investment in Marketable Financial Instruments

Continued to Decline[1]

% of financial investment

Currency and deposits
Long-term securities, shares and mutual fund shares

Source: OeNB (financial accounts).
[1] Financial investment from 1999 based on transactions.
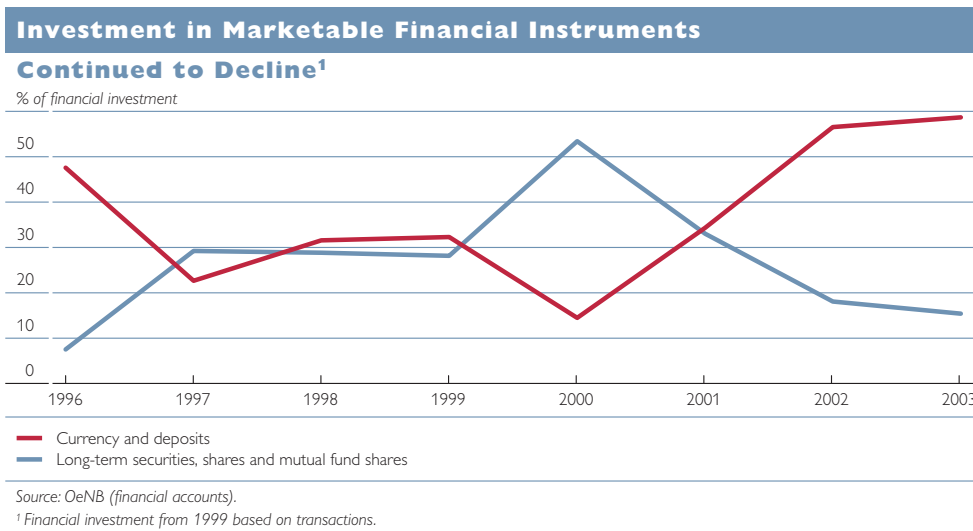
Low Interest Rates and Corporate Profits Dampened Investment Income
In the second half of the 1990s, income[36] from financial investment grew at a significantly faster rate than disposable income. In 2002, though, the share of investment income in disposable income dropped markedly. High financial investment in low-return assets and weaker corporate earnings caused the share of investment income in total disposable income to drop to 16.1% or EUR 21.6 billion. Data for 2003 have not yet become available. Yet, given investors' current preference for liquid financial instruments, low deposit interest rates and still subdued economic growth, it can be assumed that investment income was weak again in 2003 and will continue to be weak in the current year.

Chart 22

Low Interest Rates and Corporate Profits Dampened

Investment Income

% of disposable income   % of disposable income

Financial investment
Investment income (right-hand scale)

Source: OeNB (financial accounts), Statistics Austria.
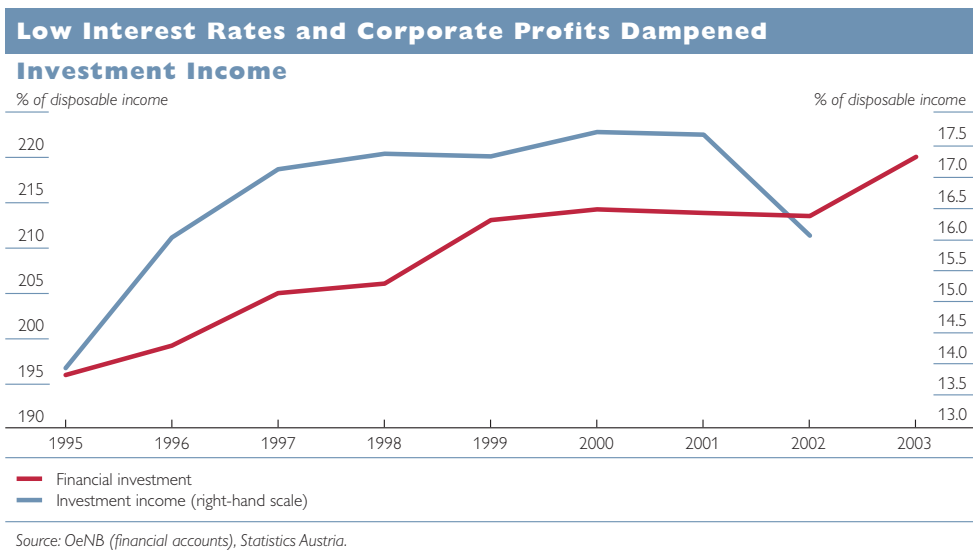
[36]   Changes in assets that reflect valuation effects do not qualify as income.

Pension Funds Cut Benefits

In 2003, approximately 3% of households' financial assets were claims on pension funds. While pension funds earned a nominal investment return of 6.9% p.a. on average between 1990 and 2003, the value of pension fund assets actually decreased in 2001 (−1.6%) and 2002 (−6.3%) owing to international capital market developments.[37]

In 2003, pension fund beneficiaries faced substantial benefit cuts. Almost half of the beneficiaries suffered cuts with losses reaching 8% on average. This reflects the high impact of international capital market developments on the benefits pension funds can actually pay out. Pension funds have already announced that there will be cuts also in 2004: 13,000 out of the 41,000 beneficiaries must expect to receive between 0.1% and 2% less than in 2003.[38]

While the roughly 41,000 pension fund beneficiaries account as yet for a small share of all old-age pensioners in Austria (December 2003: 1.1 million), the number of pension fund members (342,000 out of the approximately 3.2 million Austrians that were covered by the public pension scheme in 2003[39]) implies that potential benefit cuts by pension funds will have stronger macroeconomic implications in the future. In other words, in the future valuation changes in capital market assets may have quite an impact on the disposable income of households.

Rising Market Prices Led to Valuation Gains in 2003

Along with income, the net worth of assets is also subject to an ever higher market risk. After households had suffered valuation losses in the amount of approximately EUR 7 billion between

Chart 23

Rising Market Prices Boosted Financial Assets by EUR 2.3 Billion in 2003[1]

Source: OeNB (financial accounts).
[1] Partly estimated.

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[37] In 2002 benefits contracted by EUR 379 million according to the Financial Market Authority.

[38] These cuts are not attributable to the capital losses of 2001 and 2002 alone; they also reflect the fact that a major occupational pension plan switched to a new discount rate.

[39] Source: Association of Austrian Social Security Institutions. 2004. Die österreichische Sozialversicherung in Zahlen. 14th edition. Vienna.

2000 and 2002 from investment in shares and mutual fund shares, market prices rebounded significantly in both national and international financial markets in 2003. All in all, valuation gains totaled EUR 2.3 billion, with shares accounting for the largest portion (EUR 1.8 billion).

Stock Market

In 2003 the Vienna stock exchange (Wiener Börse) attracted new listings totaling EUR 4.7 billion from twelve corporations. This corresponds to 9.2% of gross fixed capital formation in 2003, which is significantly above the average of the period 1993 to 2003 (3.1%).[40] However, the changes of ownership, in which the new listings resulted, were not necessarily effected with a view to raising cash for new investment. The biggest flotation in 2003 was the partial sale of Bank Austria Creditanstalt by the German Hypo Vereinsbank, totaling about EUR 4.2 billion. At the same time, 19 shares were delisted from the Vienna stock exchange.

By comparison, the number of rights issues made (i.e. issues of new shares for cash to existing shareholders) at the Wiener Börse in 2003 – twelve all in all – is a far more meaningful indicator of its financing role than the number of new issues. Rights issues were primarily made by a company developing entertainment software and three real estate corporations. On balance, EUR 449 million were raised through rights issues at the Wiener Börse in 2003, which equals about 0.9% of gross fixed capital formation (average for 1993 to 2003: 1.1%). The annual turnover (in EUR, double counting) rose by 52% to EUR 19.3 billon in 2003.

The ATX climbed by 34% in 2003, which is an average performance compared with the DAX (+37%), the Dow Jones (+25%) and a broad euro area index developed by Thomson Datastream (+42%).

Chart 24

ATX Price/Earnings Ratio Finally Approaching Average Dow Jones and DAX Levels

Dow Jones
DAX
ATX

Source: Thomson Datastream. Datastream provides only quarterly data for the Dow Jones up to 1997.

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[40] *Source: Wiener Börse. 2004. Jahresstatistik 2003.*

Unlike the latter indices, which moved only slightly in the first quarter of 2004, the ATX has continued to increase since the beginning of the year.

The development of the price/earnings (P/E) ratio (see chart 24) until the first quarter of 2004 provides further evidence that the ATX did not join the rush of irrational exuberance (as diagnosed by Alan Greenspan) in the second half of the 1990s. Propelled by the points the ATX gained since early 2003, its P/E ratio is now fairly average in an international comparison. At a factor of 18, the P/E ratio is above the long-term average of the ATX (15.1 in the period from 1993 to 2003) and – while well below the averages the Dow Jones and the DAX achieved between 1997 and 2003 – approaching or catching up with the long-term average levels of these benchmarks.[41]

Bond Market

Corporate Bond Market Boomed

The financial accounts statistics show that the outstanding volume of corporate bonds jumped by EUR 4.4 billion net in the second half of 2003 alone (see chart 25). The full-year net issuance volume of corporate bonds even surpassed the net growth of corporate bank lending.

While issuance activity used to be dominated by energy utilities and quasi-public corporations, in recent years companies from other industries and, increasingly, smaller firms have also been issuing bonds. Typically, publicly issued corporate bonds had a volume of EUR 70 million to EUR 250 million, while the volumes of privately issued bonds were much smaller.[42]

The issuance volumes of Austrian companies must also be seen in the light of the fact that a number of state-owned companies that used to heavily rely on the bond market have hardly issued any new bonds since 1998 because since then they have been able to borrow through the fiscal agency program, under which the federal government relends funds raised through government bonds. At the same time, bonds issued earlier by such companies came up for repayment, which further dampened the net increase in outstanding corporate bonds. Following a Eurostat decision in February 2003, bonds issued in order to finance state-owned companies must be included in the general government debt (Maastricht definition). As a result, the companies concerned are phasing out fiscal agency borrowing and have returned to the general bond market.

Finally, the higher issuance activity also reflects companies' intention to lock in the currently low volume of interest rates.[43] Unlike bank loans, which carry mostly variable interest rates, bond yields tend[44] to be fixed until maturity.

Bonds issued by Austrian companies are typically bought by foreign investors, who held roughly 70% of the outstanding volume at the end of 2003. Nearly one fifth of all corporate bonds outstanding in 2003 were held

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[41] Averages of the period from 1993 to 2003: Dow Jones 22.6, DAX 18.0.

[42] Some bonds issues at the Wiener Börse in 2003, above all some of the larger issues, were in fact secondary listings (following a primary listing in Luxembourg).

[43] In addition to the decline in bond rates, the yield gap between corporate bonds and government bonds narrowed considerably in the euro area in 2003.

[44] Fixed-rate issues accounted for more than 98% of all bonds publicly issued at the Vienna stock exchange by Austrian companies from 2001 to 2003.

Chart 25

Net Corporate Bond Issues Jumped in 2003

Net issues in EUR billion

Source: OeNB.

by banks; this share has slightly risen in recent years. By contrast, the shares of companies and households as well as domestic institutional investors in outstanding Austrian corporate bonds are very low.

The broadening of the range of investors should essentially reinforce the stability of corporate finance, as funding constraints that may be caused by the withdrawal of individual banks can thus be avoided. In addition, bonds usually do not require collateral, which leaves borrowers more room for taking out loans. Finally, through the issuance of corporate bonds, credit risk is being spread beyond the banking system – and in the case of Austria, even beyond national borders.

Chart 26

Austrian Corporate Bond Market Dominated by Foreign Investors

Share of outstanding bonds in %

- Foreign investors
- Banks
- Institutional investors
- Companies
- Public sector
- Households

Source: OeNB.
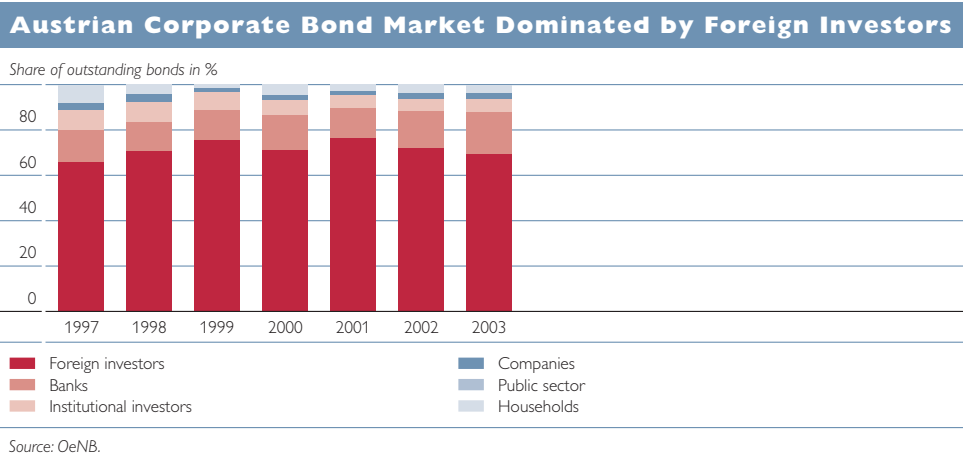
Demand for Housing Bonds Remained Strong

Housing bonds, which were launched in the Austrian market in 1993, provide a double tax advantage: The initial cost is income tax deductible, and interest coupons – which may be fixed or variable – are exempt from the first 4% of the annual investment income tax charge. Housing bonds are specifically earmarked for funding the construction and renovation of homes (which tend to be backed by mortgages).

Until August 2001, six home loan banks operated in Austria; since September 2001 the number has been down to five. Between them, they had issued housing bonds in the order of EUR 6.2 billion by January 2004. This corresponds to a share of 3.3% in the total volume of bonds outstanding in Austria (thereof, more than EUR 1.5 billion were issued in 2003).

Chart 27

Steady Rise in Housing Bonds

EUR billion

EUR million

- Housing bonds issued (right-hand scale)
— Housing bonds outstanding

Source: OeNB.

Chart 28

Housing Bond Issues – Changes in Market Shares

As at January 31th, 1996

As at January 31th, 2000

As at January 31th, 2004

- s-Wohnbaubank
- CA-Wohnbank AG
- BA-CA Wohnbaubank
- HYPO-Wohnbaubank
- Raiffeisen-Wohnbaubank
- BAWAG-Wohnbaubank

Source: OeNB.
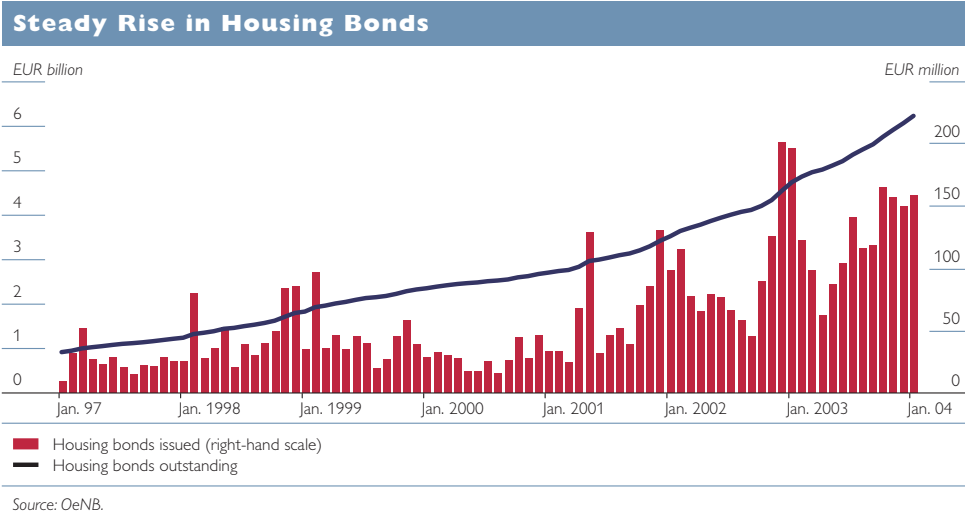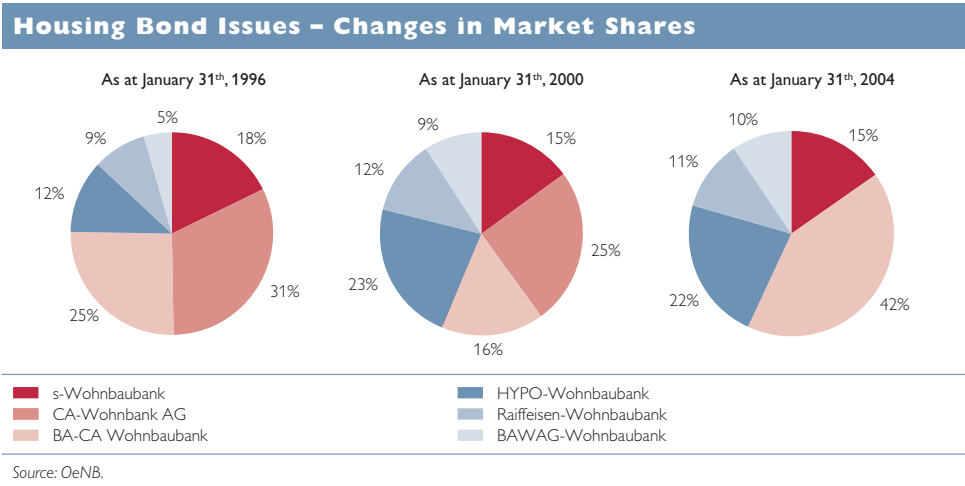
Based on market shares, BA-CA Wohnbaubank is the clear market leader, and Hypo-Wohnbaubank recorded the biggest growth rate in 2003 compared with 1996.

Real Estate Market

Range of Investment Products Widened with Open-End Real Estate Funds

The Austrian market was opened for open-end real estate funds on September 1, 2003. By mid-March 2004, four domestic real estate funds had issued instruments in the order of about EUR 500 million in this cate-gory. So far, only a single foreign provider has entered the market, and banks have been the main channel (90%) through which the new product has been distributed.

Tax Rules Distorted Competition Somewhat

Austrian real estate funds may invest only directly in property. In other words, buying real estate through a holding company, which is international practice, is not an option for Austrian funds. For tax purposes, 80% of unrealized revaluation gains

are treated as taxable income, while equalization payments for capital losses are not.[45] Moreover, domestic providers enjoy preferential tax treatment, which has sparked a debate: Distributions made by open-end real estate funds, be they foreign or domestic, are generally subject to an investment income tax of 25%. However, tax on income from foreign property is not treated as final in Austria. This means that whereas for domestic funds, double taxation agreements are taken into account at the time of distribution, investors in foreign funds may not claim such tax relief until they file their tax returns, which leaves them with a tax disadvantage and a higher administrative burden. One solution might be that banks voluntarily withhold investment income tax from the reinvested income of foreign funds.

Austrian Closed-End Real Estate Funds Outperformed Foreign Funds

To conclude, a few notes on the performance of other real estate investment instruments. Closed-end real estate investment schemes (often referred to as *closed-end real estate funds*[46]) may generally be expected to outperform open-end funds because the underlying risk is higher as such funds typically invest into a single object. They provide a higher degree of transparency than open-end funds and offer a flexible product selection. Closed-end real estate funds tend to have a better performance, as they may invest only up to 95% of their assets.[47]

At EUR 3.68 billion invested in closed-end real estate funds, this category had a market share of 45.1% of the whole closed-end segment at the end of 2003. In an international comparison, Austria ranked third with EUR 353.6 million, which is a historic high (+187% year on year). This high share may be attributable to high tax credits; at the same time, foreign investors may have used the possibility to spread their portfolios more broadly.

The significance of *real estate shares* listed at the Vienna stock exchange is rising. At EUR 500 million invested at the end of 2003, real estate shares accounted for as much as 35% of the overall issuing volume.

In 2003, foreign investors were particularly keen on investing directly in property (EUR 0.8 billion, five times as much as in 2002). Austrian purchases of real estate abroad totaled EUR 0.3 billion.

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[45] *An amendment of this clause would prevent dichotomies such as funds suffering capital losses from the revaluation of assets but investors having to pay investment income tax on rental income.*

[46] *Unlike open-end funds, closed-end funds are typically set up for a fixed portfolio for which money is to be raised. The fund will stop issuing units once the required funding level has been reached. Open funds generally sell as many shares as investor demand requires.*

[47] *They must at all times be able to repurchase shares.*

SPECIAL TOPICS

New Approaches
to Banking Analysis in Austria

Evelyn Hayden
Jürgen Bauer[1]

This paper describes three new off-site monitoring tools recently developed by the Oesterreichische Nationalbank (OeNB) and the Austrian Financial Market Authority (FMA) with scientific support from the University of Vienna.[2] As logit models currently represent the state of the art in credit score modeling both in the academic literature and in practice, in a first step a logit model was estimated, for which an AUROC[3] of more than 80% was achieved. Next, the logit model was complemented by a Cox model to learn more about the time structure of default probabilities. Finally, a structural model was developed with the aim of showing clear causal connections between a bank's risks and default probabilities. Hence, a system of value-at-risk (VaR) models was constructed for the main risk factors faced by banks, i.e. credit risk, market risk and operational risk, which was brought in relation to banks' potential to cover losses.

Introduction

The OeNB and the FMA attach great importance to the development and use of powerful off-site analysis tools. Therefore, the two institutions recently began to cooperate in developing a new system of off-site monitoring tools (to be implemented in addition to the systems currently in use).[4] The new tools can be divided broadly into "statistical" and "structural" models. In this paper, the term "statistical model" denotes systems which exclusively use econometric methods to find powerful predictors of bank distress, while "structural" approaches do not only investigate variables highly correlated with default to identify troubled banks but aim to explain banks' risk via economic models, thus offering clear causal connections.

In the category of statistical models, the project team has developed (and still works on improving) logit and Cox models, while on the structural side a system of value-at-risk (VaR) models has been constructed for the main risk factors faced by banks (credit risk, market risk and operational risk). An overview of all these models is given below, with a special focus on the innovative aspects of the various approaches.

Statistical Models – The Logit Model

The project team chose a logit model as the principal statistical off-site analysis tool because the results of this type of model can be directly interpreted as default probabilities. Besides, logit models currently represent the state of the art in credit score modeling both in the academic literature and in practice; logit models can easily test whether the empirical dependence between the potential input variables and the default risk is economically reasonable.[5]

The major challenge in developing this type of model was to identify the "correct" definition of default. In Austria, about 1,100 banks existed in the past ten years, and a wide range of quarterly information[6] on these banks has been available in most cases

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[2] Evgenia Glogova, Markus Hameter, Andreas Höger, Johannes Turner, OeNB; Wolfgang Errath, Stephan Unterberger, FMA; Engelbert Dockner, Michael Halling, Alfred Lehar, Josef Zechner, University of Vienna.
[3] The AUROC measures the predictive power of a rating model. A model that discriminates perfectly between defaulters and non-defaulters would receive an AUROC of 100%. For details see Sobehart and Keenan (2001) or Engelmann et al. (2003).
[4] See Turner (2000).
[5] See e.g. Hayden (2003).
[6] The available information includes typical information like balance sheet data, detailed information about large exposures (i.e. exposures of more than EUR 350,000) and various regional macroeconomic indices.

since December 1995. However, since then there have hardly been any cases of actual bank default in Austria, at least far too few to base any statistical model on the relating observations. What is more, all of the few actual defaults were traceable to events that were probably not reflected in the available data before the event of default. Therefore, the project team did not develop a model for true bank defaults, but defined the default event as a situation were a bank was facing such serious trouble that it seemed unlikely to have been able to cope without any kind of intervention (usually in the form of mergers with, or allowances from, affiliated banks). Besides, given this kind of default criterion, the project team found it was unrealistic to declare a bank to be entering into the state of default at the time of intervention, but assumed that the bank must have been in difficulties for at least two quarters before an intervention occurred. Similarly, it seemed probable that troubled banks needed at least two quarters to recover completely after an intervention took place, implying that these banks should have been marked as defaulters for five consecutive quarters. Bearing this in mind, the project team was able to construct a data set of about 33,000 quarterly observations with 750 problematic bank events covering a time period of more than seven years.

In the view of the project team, the number of observable defaults was now large enough to split the available data into an estimation and a validation sample. To guarantee that the structure of the Austrian banking system – i.e. a few large and many small banks and a concentration in certain banking sectors – was reflected accordingly in both data sets, the 33,000 quarterly observations were split into seven sector groups. Within each such group, large and small banks were separated. Thus, a total of 14 subsamples were generated. In a next step, two thirds of the observations marked as defaulting respectively non-defaulting from each of the 14 subgroups was randomly drawn for the estimation sample, while the remaining observations from all groups formed the validation sample.

Using this estimation sample, 280 candidate model input ratios were constructed. These 280 ratios can be classified according to the 11 risk categories displayed in the table below. After eliminating outliers, testing for the linearity assumption implicit in the logit model[7] and checking whether the univariate relationships between the candidate input ratios and the default event were economically plausible,[8] all variables were tested for their univariate power to identify troubled banks one year before the default event took place. Only those ratios that had an Accuracy Ratio[9] of more than 5% were considered for further analysis. As these included still more than 200 variables, it was not feasible to test all possible model specifications. Hence, another procedure had to be found for selecting the final logit model.

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[7] *Some input variables had to be linearized using the Hodrick-Prescott filter, see Hodrick and Prescott (1997).*

[8] *The exact procedures are analogous to those described in Hayden (2003).*

[9] *The Accuracy Ratio is another measure for the predictive power of rating models; see e.g. Keenan and Sobehart (1999). As illustrated in Engelmann et al. (2003), the Accuracy Ratio and the AUROC measure exactly the same information.*

One possibility to proceed would have been to determine the most powerful univariate ratio of each of the 11 risk categories and to combine them to form a multivariate model for further analysis. However, when looking at the correlation between the variables of one group, the project team found that – for most categories – not all variables were highly correlated, but that there existed correlation subgroups. This implied that if only the candidate input ratio with the highest Accuracy Ratio (or the largest area under the ROC[10] curve – AUROC) from each risk category had been included in the model-building process, there would probably have been the risk of ignoring important variables. Instead, the best variable from each correlation subgroup was selected, reducing the list of candidate input ratios to 83.

Table 1

Risk Factors Considered for the Statistical Models

	Number of ratios		
	Original	After univariate and correlation analysis	Final
Bank characteristics	38	7	1
Credit risk	52	15	3
Credit risk based on large exposures	21	5	1
Capital structure	22	7	2
Profitability	41	19	4
Market risk	12	3	–
Liquidity risk	15	5	–
Operational risk	11	1	–
Reputation risk	6	2	–
Management quality	13	5	–
Macroeconomic factors	49	14	1
Total	280	83	12

Then, after further reducing the list of ratios to 56 by eliminating variables that were highly correlated between different risk categories, backward and forward selection methods[11] could be applied to check whether all remaining input ratios were statistically significant or whether the logit model could be reduced to a lower number of input variables. Indeed, the final model only consists of 12 input ratios. Their distribution among the risk categories is displayed in the table above.

The fit of the final model as well as its predictive power with a view to new data were tested in several ways. To check the fit of the model, the typical statistical tests for logit models like deviance, leverage or the Hosmer-Lemenshow goodness-of-fit tests were applied. The popular concept of the Accuracy Ratio respectively the AUROC mainly served to assess the model's power; however, the project team also adopted the latest procedures to calculate confidence intervals for the above measures and implemented rigorous statistical tests to ensure the superiority of the final logit model compared to other rating methodologies.[12] Besides, the project

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[10]   The Receiver Operating Characteristic (ROC) curve is a plot of the fraction of defaulters predicted correctly versus the fraction of non-defaulters incorrectly specified as defaulters for all possible cut-off values of the tested model. See Sobehart and Keenan (2001) or Engelmann et al. (2003) for details.

[11]   The significance levels were set at 10%.

[12]   See Engelmann et al. (2003).

team did not only rely on the results of the validation sample, but also randomly drew further test samples from the total data pool and evaluated the performance of the logit model for these samples, too. The result was that both the fit and the power of the model were satisfactory and very stable over various data samples. By way of example, the table below shows the AUROC for the estimation and the original validation sample.

Table 2

The Power of the Logit Model Measured by AUROC			
	AUROC in %	σ_{AUROC}	95% confidence interval
In sample	82.87	0.0129	[0.8034, 0.8539]
Out of sample	80.63	0.0210	[0.7651, 0.8475]

Finally, the project team calibrated the estimated model probabilities to obtain "severe problem" and "true default" probabilities. Moreover, these values were mapped into a rating scheme to reduce the variability in the time series of the results for individual banks.

Statistical Models – The Cox Model

The OeNB and the FMA decided that – using the same data base and the same candidate input variables as described in the previous section – a Cox Proportional Hazard Rate Model should be developed in addition to the logit model. Originally, the reasons for this decision were, on the one hand, the desire to learn more about the time structure of default or problem probabilities (i.e. the survival function of the average "defaulting" bank) and on the other hand, the idea to use the output of the Cox model as a robustness check for the results of the logit model. Later on, however, the project team found an innovative solution of building the Cox model in such a way that it truly complements the logit model.

Whenever Cox Proportional Hazard Rate models are applied to predict bank failures[13] in the academic literature[14], they are usually set up in such a way that the observation periods for all banks start at the same point in time. In the case of the Austrian data set, where information about banks is available since December 1995, this would imply that the observation periods for all Austrian banks should begin with exactly this date. In this set-up, the Cox model would – based on the available input data – try to separate banks that experience problems at an early stage from those that face difficulties at a later stage (or not at all). Thus, the model would indicate whether banks are "at risk."

An alternative procedure could be to define a certain cutoff rate for the output of the logit model and to classify Austrian banks as probable "defaulters" and "non-defaulters" (or problem banks and non-problem banks) accordingly.[15] Now only the banks identified as being at risk by the above procedure should enter into the Cox model, where the observation period starts at the point in time when the bank hits the defined cutoff rate for the first time. As the logit

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[13] The same is true for the prediction of nonfinancial business defaults.

[14] See e.g. Henebry (1996).

[15] Here, the cutoff rate should be set to a level where (almost) all troubled banks are correctly classified.

model misclassifies some banks (as a statistical model will do per definition), some non-defaulting banks would also enter into the Cox model. This means that in this set-up, those parameters would enter into the Cox model that best predict whether banks that are at risk really default later on. Therefore, as all banks identified as being at risk by the logit model are then reclassified by the Cox model, the combined output of both models probably has a higher Accuracy Ratio[16] than the logit model by itself.

To develop the two types of Cox models, the project team applied procedures similar to those described for the logit model. While the classical version of the Cox Proportional Hazard Rate model is ready for implementation, the development process for the advanced Cox model type has not been completed yet.

Structural Models

In addition to the statistical models described above, the OeNB and the FMA decided to develop a structural model that should show clear causal connections between a bank's risks and default probabilities. Hence, a system of value-at-risk (VaR) models was constructed for the main risk factors faced by banks, i.e. credit risk, market risk and operational risk, which was brought in relation to banks' potential to cover losses. The individual model components are summarized below.

Credit VaR

When the project team began to develop a credit value-at-risk model, it examined the usefulness of the three most popular credit risk portfolio models – KMV, CreditMetrics and CreditRisk+[17]. Finally, the team decided in favor of the latter, basing its decision primarily on input data restrictions, as the market input data required for the KMV model are only available for the largest two Austrian banks and the rating data for all individual loans – a crucial input for CreditMetrics – have not yet been made available to the Austrian regulators in the desired quality. However, the OeNB has collected data on large exposures for a number of years, and this information was used as the major input for the following approach.

The project team decided to implement a CreditRisk+ model, in which the available information about the distribution of banks' exposures across various industries was to be utilized. Besides, while the project team felt that under the assumption of fixed default frequencies per industry, the CreditRisk+ approach was too unrealistic, implementing a CreditRisk+ model based on many industries with stochastic default rates seemed, by contrast, too cumbersome for a first version. Therefore, the following type of mixed procedure was adopted.

All large exposures were allocated to 11 broadly defined industries in which the respective borrowers were operating. Besides, as historical default data were available for these industries, the project team was able to calculate individual empirical default frequen-

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[16] The output of the Cox Proportional Hazard Rate model comprises relative hazard rates for the observed banks. Just like the default probabilities of the logit model, they can be used to rank banks according to their perceived riskiness; thus, they may serve as the basis for calculating the Accuracy Ratio.

[17] See Crouhy et al. (2000).

cies and standard deviations for all 11 industries. The loss given default, however, had to be set to a fixed percentage for all branches. Next, for each bank all large exposures were allocated to different loss-given-default buckets. By interpreting the historical default rates per industry as expected future default frequencies and by taking the industry composition of the exposures per bucket into consideration, the project team was able to derive the expected number of defaults (and standard deviations) per bucket. Given that since 2003, rating information has been reported for each loan within the monthly statement of large exposures, the project team decided to use this rating information to adapt the probabilities resulting from the information gathered on the individual industries. The adjusted figures were summed up over all buckets, and thus the expected number of defaults of one "meta"- industry was identified. This procedure produced all the information needed to allow for analyzing a CreditRisk+ model with one stochastic process.

However, as small banks usually grant only few large-scale loans, the above procedure was improved, taking small-scale loans into account by way of approximating the total exposure of small-scale loans from the balance sheet data reported in the monthly return. The resulting approximated total volume of small-scale loans per bank was then allocated to the lowest bucket per bank. Finally, under the assumption that all small-scale loans were of similar magnitude, the number of small-scale loans per bank could be approximated by dividing the volume of small-scale loans by the size of the respective bucket. The rest of the approach remained unchanged and was executed as described above.

Market VaR

The Austrian market value-at-risk model focuses on interest rate position risk, equity position risk and foreign exchange risk. It was implemented as a standard delta-normal approach based on daily variance-covariance matrices for the risk factors. The major challenge concerning this model was collecting the necessary input data for test calculations, as the information banks currently are required to report (especially concerning the equity position risk of large trading books) was not sufficiently detailed.

Operational VaR

Although the Austrian banks have already begun to callect the data on operational losses necessary to quantify this risk properly, these data have not been available to the regulators yet. However, as the project team agrees with international studies which claim that operational risk is an important risk factor calculating that banks hold up to 30% of their economic capital to cover operational risk, the following work-around based on the Basel II basic indicator approach was developed to include at least a crude approximation of this risk factor in the first version of the structural model.

If one assumes that the frequency of operational loss events is geometrically distributed and if one approximates the loss given event via an exponential distribution, then the total losses attributable to operational risk are also exponentially distributed and can hence be described completely via the identification of only one parameter. As a consequence, the operational VaR can be calculated for any confidence level once this parameter is known. This calculation is based

on the fact that advanced measurement approaches according to Basel II require a 99.9% confidence level in order to calculate the minimum capital requirement and on the assumption that also the basic indicator approach, which is easy to implement, has been calibrated to that confidence level.

Aggregation of VaRs

Once the individual VaRs are calculated, they have to be aggregated to derive one total VaR for each bank. This probably represented the biggest challenge for the project team.

In a first step, the individual VaRs had to be adjusted to represent risk measures for equal time periods, as the credit VaR and the operational VaR were derived for a yearly time horizon, while the market VaR was derived for a daily horizon. As rating agencies usually quote yearly default probabilities and also Basel II favors this time horizon, the project team decided to adjust the market VaR accordingly. To do so, the daily market VaR was scaled up by the square root of 250. The project team felt that this was the best and most consistent procedure, although it realized that the chosen approach probably overestimated market risk, given that banks can easily restructure their trading portfolio in a much shorter time period.

Concerning the actual aggregation of the individual VaR components, the project team mainly evaluated two approaches – aggregation via using a variance-covariance matrix, and application of copulas. However, both methods did not seem to be convincing. On the one hand, the use of a variance-covariance matrix is only theoretically sound if the risk factors are normally distributed, which appears to be ques-

tionable particularly for credit risk and operational risk; moreover, it seems unclear how the covariances can be estimated, especially when taking into account that the composition of market portfolios can be very volatile. On the other hand, the application of copulas is rather cumbersome and it remains questionable whether this level of precision is necessary for the aggregation, given the approximations needed to calculate the individual VaRs. Given these considerations and the view that in case of doubt, an overestimation of banks' default probabilities was preferable to an underestimation, the project team decided in favor of a "conservative" approach, where the overall VaR was defined as the simple sum of the individual VaRs.

Banks' Capacity to Cover Losses

The last step in the structural model is to relate the total bank VaR to the bank's capacity to cover losses. Given the total VaR distribution, one can identify the significance level for which the bank's covering funds are exactly equal to its value at risk. The bank's default probability is then just one minus this figure.

The project team has already performed some test calculations for the structural model for a number of selected banks including large banks which are highly relevant for the entire banking sector as well as smaller network banks. In all cases, the results are of plausible magnitude and hence support the chosen model specifications.

All in all, the project team is convinced that, although the structural model is currently based on a set of simplifying assumptions, the foundations have been laid for a comprehen-

sive model that is able to explain and predict the risks banks face via clear causal connections. The modular structure of the approach favors further improvements of this model as specific components can be updated whenever new data or insights are available without the need to adjust the system as a whole.

Conclusion and Outlook

The OeNB and the FMA made great efforts to develop a set of modern, powerful off-site analysis tools. Although the predictive power of these new models is already very satisfactory at the current stage, further work will be carried out to improve the results and to keep the statistical tools in line with the latest state of the art. Further details regarding the discussed models will be published in autumn 2004 and the newly revised Austrian Off-Site Analysis System (which will incorporate the models discussed above) will be presented in spring 2005.

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Innovative Credit Risk Transfer Instruments and Financial Stability in Austria

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In the course of an investigation initiated by the Banking Supervision Committee (BSC) of the European System of Central Banks in the fall of 2003, the Oesterreichische Nationalbank (OeNB), together with the Financial Market Authority (FMA), conducted a survey among Austrian banks about the extent of and the motives for the use of innovative credit risk transfer instruments (securitizations, credit derivatives) in Austria. Based on the results of the survey, which are published here for the first time, this paper explores the potential implications for financial stability in Austria. It was found that Austrian banks currently use credit risk transfer instruments primarily to generate additional income and to optimize portfolios. The nominal volumes of the credit risk transfer instruments used by Austrian banks are currently rather small compared with their total assets. Therefore it can be assumed that in the forseeable future the Austrian banking system will continue to be largely able to cope with problems that may arise from the use of these instruments. Nevertheless, supervisors should closely monitor the development of these instruments and banks' risk management practices to address potential risks to financial stability in a timely fashion.

Introduction

The surge in the use of innovative credit risk transfer instruments[2] (CRT) by credit and financial institutions on an international level has repeatedly raised the question of which effect these instruments may have on financial stability. Recent accounting scandals (e.g. Enron or Worldcom) involving the use of these instruments and the ensuing insolvencies contributed to directing supervisors' increased attention to this topic. The OeNB has also stepped up its focus on CRT instruments.[3] In the course of an investigation initiated by the BSC of the European System of Central Banks, in the fall of 2003, the OeNB, together with the FMA, conducted a joint survey among Austrian banks about the extent of and the motives for the use of credit risk transfer instruments in Austria. Based on the results of the survey, which are published here for the first time, this paper looks into potential implications for financial stability in Austria.

Risks and Opportunities of Innovative Credit Risk Transfer Instruments

Before presenting the results of the investigation in detail and analyzing the implications for financial stability in Austria, we will define the term *credit risk transfer,* describe its evolution and outline the risks and opportunities attributed to CRT instruments in scientific and political discussions. However, in doing so, we will focus on those opportunities and risks relevant to financial stability.[4] We will then discuss these aspects against the background of the results of the Austrian survey and examine them for relevance.

The survey included the investigation of both securitizations and credit derivatives as innovative credit risk

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[1]   *Oesterreichische Nationalbank. We would like to thank Luise Breinlinger (OeNB) and Gerald Krenn (OeNB) for their valuable comments on this text.*

[2]   *In order to differentiate new from traditional credit risk transfer types (such as credit insurance, guarantees etc.), we use the term "innovative" instruments for securitizations and credit derivatives.*

[3]   *For example, in October 2003 the OeNB organized a workshop on "Asset Securitization and its Impact on Financial Stability" with international experts. Also, the OeNB has published a guideline on the risk management of securitization, which should spark further discussions of the credit risk transfer issue (OeNB, 2004). See also: Scheicher (2003).*

[4]   *See, for example, Kiff, J. et al. (2003).*

transfer instruments.[5] Securitization is here defined as a structure which transfers credit risk from a defined pool of assets in the form of at least two differently rated tranches as tradable security to investors, risk takers and also originators. A credit derivative is a bilateral financial contract which enables investors to isolate credit risk from other risks (especially market risk) of financial instrument and to transfer it to a counterparty without transferring ownership of the underlying asset.

Credit risk transfer instruments have been in use for a long time. The market for syndicated loans started to develop in 1970 and the secondary market for bank loans in the U.S.A. in the 1980s. The first securitizations were also carried out in that period. Other instruments, e.g. bank guarantees and credit insurance, also have a longstanding tradition.

Recent developments, however, indicate a significant change in the approach to understanding and managing credit risk. Banks increasingly view both loans and credit risk as tradable goods which no longer need to be kept in the balance sheet until they mature as used to be the case, but can be transferred to investors even before maturity. Innovations in the field of credit risk transfer instruments thus enhance the options of risk managers and allow banks to modify their risk profiles, regardless of the original transaction, as securitization and credit derivatives make it possible

to isolate credit risk and transfer it to investors willing to assume the risk. Furthermore, banks shift the focus of their risk management from individual loans to portfolios. At the same time, demand for credit risk by financial firms outside the banking sector (e.g. insurance companies, hedge funds)[6] has been on the rise as many financial institutions are looking to raise their profits in a low-interest environment by means of profitable, although at times more risky, instruments. In addition, securitizations may allow refinancing under favorable conditions, which makes these financial instruments more attractive to banks faced with declining profit margins in an environment of increased competition in the deposit business.

A large number of new CRT instruments has emerged recently. As it is often the case with new types of financial instruments gaining importance in the market, this fact has incited a debate about potential risks to economic development and financial stability. The following aspects are considered to be among the positive effects of credit risk transfer instruments on financial stability:[7]
— These instruments open up new risk management opportunities for banks, as credit risk becomes tradable and therefore more easily manageable. Also, the management of both the regulatory and economic capital can be refined.
— Credit losses can be covered by several investors and do not neces-

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[5] *This includes the following instruments, which have been used in Austria for a few years: credit default swaps (CDS), credit spread forwards, credit spread options, total rate of return swaps, credit linked notes (CLN), asset-backed securities (ABS), mortgage-backed securities (MBS), as well as collateralized debt obligations (CDO). For a description of the instruments see the glossary at the end of the paper as well as, among others, Scheicher (2003), OeNB (2004), Gregory (2003), BIS (2003).*

[6] *See BIS (2003), p. 4.*

[7] *See, among others, IMF (2002), European Central Bank (2002), Kiff et al. (2003), Ferguson (2002), Prato (2002), Rule (2001a, 2001b).*

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sarily accumulate in the books of only one or just a few banks. If credit risk transfers in fact spread credit risk over a broader range of investors, it can be argued that financial stability does indeed increase.

— The reallocation of credit risk may take place not only between different players in the financial market (such as banks, insurance companies, hedge funds, etc.), but also between banks alone, thus leading to an improved distribution of certain risks *within* the banking system. For example, the mutual exchange of credit risk can reduce banks' risk of geographical or structural/sectoral concentration (a high amount of assets in one industry).

— The use of credit risk transfer instruments can generate liquidity and/or income. If the bank receives liquidity when revenues and profitability are uncertain, it will become more flexible in managing its finances.

The following aspects of CRT instruments are generally considered to have a negative impact on financial stability:[8]

— So far, on an international level, no exact aggregated data are available about the use of CRT instruments by the various market players (banks, insurance companies, hedge funds, pension funds, etc.). Furthermore, even with already existing data it is often difficult to determine the actual economic net credit risk. Therefore, the CRT market is at present not very transparent.

— There is also concern that credit risk may be concentrated with financial institutions (e.g. insurance companies, pension funds, hedge funds, etc.) which are not subject to the same rigid risk management provisions (capital requirements) as banks.[9]

— Many market participants buying credit risk rely heavily on the opinion of external rating agencies, since they often do not have the possibility to assess the credit risk exposure themselves. A bank with a long-standing relationship with its customer selling the underlying risk is likely to have more information on the respective customer than the bank acquiring the credit risk, which often relies on external rating agencies. For this reason, rating agencies play a key role for many market participants in the CRT market.

— As is the case with interbank liabilities from underlying lending relationships, credit derivatives and securitizations may involve systemic risk, which may occur if a loan default with one bank triggers a chain reaction of defaults with other banks (a "domino effect", see Elsinger et al., 2002).

— The security design (see Jobst, 2003) is of key importance for the effectiveness of the credit risk transfer, and the contracting parties should be aware of it. The complexity of the specific design of credit risk transfer instruments and partly as yet incomplete statutory contractual provisions often lead to enhanced legal and documentation risks. Due to these legal uncertainties, issuing banks are

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[8] See, among others, European Central Bank (2002, 162f.), Scheicher (2003), Rule (2001a, 2001b).
[9] See, for example, Rule (2001a, 2001b), IAIS (2003), FSA (2002), Standard & Poor's Correct (2003).

also exposed to, for example, recourse risk, i.e. they may have to return payments already received from investors.

— Intermediation theory often refers to a change in the role of banks which might have an impact on financial stability. If the increased use of credit risk transfer instruments causes more and more banks to move from an originate-and-hold-to-maturity to an originate-and-distribute strategy, banks may lose their traditional monitoring function in lending and thus fundamental information about the underlying relationship with the debtor. Even if banks retain their monitoring function, problems may arise in connection with asymmetric information. For example, the originator may have an incentive to select low-quality loans for a transaction (adverse selection), or the original lender may have a lower incentive to monitor the loan (moral hazard).[10]

In summary, the current international debate indicates that there are both positive and negative implications of credit risk transfer instruments for financial stability. Before turning to the assessment of the situation in Austria, in the following we present the results of the survey of banks' CRT activities.

Austrian Banks' Activities in the Field of Innovative Credit Risk Transfer Instruments

Survey among Austrian Banks

In order to analyze the actual implications of credit risk transfer instru-

ments for financial stability, the extent of their actual use in the financial market has to be determined first. The lack of information is often considerable, as in most countries there has been no systematic and comprehensive documentation of the use of these instruments with financial market participants (banks, insurance companies, hedge funds, etc.). In order to improve the level of information at least on the use of CRT instruments at banks within the EU, the Banking Supervision Committee initiated interviews with specifically selected banks in 15 EU countries. In the fall of 2003, eight selected Austrian banks were surveyed by the OeNB and the FMA about innovative CRT instruments.[11] The banks were selected according to their (presumed) activities in the field of CRT. The questions followed a standardized questionnaire and focused mainly on qualitative aspects in the use of these instruments. Information was collected on the extent of CRT activities and banks' motives, risk management and risk awareness, the assessment of the CRT market developments as well as on the impact of these instruments on banks' business strategies.

Motives for the Use of Credit Risk Transfer Instruments

At present, the Austrian banks surveyed use innovative credit risk transfer instruments primarily for managing their portfolios and less for trading, thus acting as net credit risk buyers in terms of unconsolidated nominal values, i.e. the purchased loan exposure in nominal terms is higher than the volume sold. This,

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[10] For a detailed description of the problem see BIS (2003).

[11] As of June 2003, the unconsolidated balance sheet total of the banks surveyed amounted to EUR 286 billion, which corresponds to 48.4% of the unconsolidated overall balance sheet total of all Austrian banks.

however, applies only unless portfolio effects, which, owing to increasing diversification, might even reduce banks' overall credit risk exposure, are taken into account.

The motives given for assuming credit risk are, on the one hand, the chance to generate additional income in a difficult economic environment, and, on the other hand, risk diversification through the purchase of credit risk which is not or hardly correlated with the existing portfolio. The sale of credit risk through credit derivatives is currently rather modest in Austria, which, according to the banks surveyed, is attributable to the fact that many medium-sized Austrian borrowers are not externally rated and the Austrian corporate bond market currently lacks depth.

Furthermore, Austrian banks play the role of intermediaries of securitization transactions by selected corporate clients, albeit still to a small extent. They provide, for example, liquidity facilities for asset-backed commercial paper (ABCP) programs or credit enhancements. Since Austrian enterprises have recently shown increased interest in this alternative form of (re)financing, banks' intermediary function is likely to gain importance in the future.

Approximately half of the banks surveyed have conducted asset securitizations as originators either in Austria or abroad via subsidiaries. The main motives of the banks surveyed to act as originators of securitizations include the possibility of optimizing regulatory capital requirements as well as the possibility of using another (possibly more favorable) form of refinancing and safeguarding liquidity. Another purpose of these transactions is to actively manage risks. Generally, however, the securitization of assets in

Austria is – compared with other European countries – still in an early stage of development. Some banks say that this is attributable, in particular, to high transaction costs, the currently limited possibility of using multi-seller securitizations and low liquidity needs as well as the fact that at present, banks seem to maintain a sufficient capital cushion.

Type and Extent of the Credit Risk Transfer Instruments Used

At present, the banks surveyed use most frequently credit default swaps (CDS), credit linked notes (CLN), asset-backed securities (ABS), mortgage-backed securities (MBS) and collateralized debt obligations (CDOs) (see glossary), whereas credit spread forwards, credit spread options and total rate of return swaps play a rather insignificant role.

When interpreting the data, especially those on credit derivatives, it has to be taken into account that the gross nominal value alone may not reflect the underlying risk correctly. Attention should also be paid, for example, to netting or collateral agreements for assessing the risk of the counterparty. For a more accurate assessment of the actual risk, the credit rating of the underlying assets should also be considered.

Caution is also warranted when analyzing the nominal values involved in the sale of credit risk through securitization. Since transferring credit risk is not necessarily the prime motive of securitization transactions, originators frequently retain the so-called first loss position and transfer the senior tranches, i.e. the tranches with a relatively lower risk, to investors. Therefore, for instance, a true sale securitization may have a financing effect and cause a reduction in

total assets, but it does not necessarily mitigate the risk to a corresponding extent.

Since there has been little aggregated information available so far about the size and the risks of the Austrian CRT market and in spite of the problems mentioned above, the nominal values of the CRT instruments used were collected in the survey among Austrian banks to provide a first insight in banks' CRT activities.

Buying Credit Risk

As of June 2003, credit risk purchased by the eight surveyed banks in the form of credit derivatives and securitizations on an unconsolidated basis totaled approximately EUR 9.8 billion, with ABS, MBS and CDOs (52.8%) accounting for a slightly larger percentage than credit derivatives (47.2%). Thus, on an unconsolidated basis, purchased credit risk accounted for some 3.4% of the total assets of the banks surveyed. The amounts of the individual positions were in the single and lower double digit million euro figures. Most of the underlying assets and tranches were highly rated (investment grade) and represented almost exclusively foreign credit risk exposures, in particular from the U.S.A., United Kingdom, Germany, Switzerland, France, the Netherlands and Australia. Credit risks from emerging markets were also bought to a small extent. Most of the positions were held in the banking book (72.2% as opposed to 27.8% in the trading book) until maturity.

Selling Credit Risk via Credit Derivatives

As of June 2003, credit risk sold by the eight banks surveyed in the form of credit derivatives on an unconsolidated basis amounted to some EUR 2.3 billion. Single name and portfolio CDS accounted for the biggest share (EUR 2.1 billion), equaling some 0.7% of the unconsolidated total assets of the surveyed banks. The underlying loans of some portfolio CDS represent existing ABS and CDO positions. 67.7% of the credit risk transferred is recorded in the banking book and 32.3% in the trading book. In addition, from January 2003 through June 2003, the surveyed banks issued credit linked notes worth EUR 192 million on an unconsolidated basis. The CLN issued served to meet investors' demand and were not issued for the purpose of reducing credit risk. In other words, the underlying assets of these CLN were acquired for the specific transaction.

Just like credit risk purchases, credit risk sales via credit derivatives and securitizations are almost exclusively cross-border transactions, mostly with other European countries. EU-based large banks and investment firms seem to account for the majority of credit risk buyers and investors in tranches of securitization transactions by Austrian banks.

Owing to the international scope of the CRT market, the extent to which Austrian banks assume credit risk from other Austrian banks is apparently fairly small. At present, credit risk sales and purchases through the innovative instruments mentioned are primarily cross-border transactions.

Major Securitization Transactions in Austria

Leasing transactions and CDOs in particular accounted for the major securitization transactions by Austrian banks and their subsidiaries in the recent past. In 2003, for example, a subsidiary of Erste Bank, EBV Leasing

GmbH, launched a true sale transaction dubbed "Edelweiss Auto." The volume of this transaction, which involved mostly car leasing receivables, came to EUR 220 million. In 2002, Bank Austria Creditanstalt issued a EUR 1 billion synthetic CDO under the name of "Promise Austria 2002." This synthetic securitization was carried out in cooperation with KfW bank (Kreditanstalt für Wiederaufbau) as a partly financed structure. Also in 2002, the Italian subsidiary of Hypo Alpe-Adria-Bank launched a EUR 250 million true sale transaction, which primarily involved leasing receivables.

In 2001, the province of Lower Austria launched the "Blue Danube" transaction, a true sale MBS with a volume of EUR 2.6 billion. The true sale securitization of Porsche Bank, "FACT-2001", which was issued the same year, involved car leasing receivables in the amount of EUR 400 million. In 2000, the Italian subsidiary of Hypo Alpe-Adria-Bank launched a EUR 157 million true sale securitization of leasing assets. In 1998 and 2000, Bank Austria Creditanstalt issued CDOs entitled "Amadeus" (synthetic) and "Mozart" (true sale) with a total value of EUR 1.8 billion. The underlying assets were bonds and ABS.

Altogether, Austrian banks and the province of Lower Austria securitized credit risk in the amount of some EUR 6.4 billion in the past few years.

Risks and Risk Management of Credit Risk Transfer Instruments

According to the banks surveyed, the main risks associated with innovative credit risk transfer instruments are counterparty, legal, liquidity and price risks. Owing to the complex transaction documentation, legal risk

is considered particularly significant. A few banks reported individual defaults of positions acquired through credit risk transfer instruments. Irregularities arising with the servicer of a securitization transaction were also reported, just as a few cases that currently pending before a court of law. Furthermore, banks experienced downgradings of certain exposures by rating agencies.

Before using the various credit risk transfer instruments, the majority of the surveyed banks had followed appropriate product launch procedures and established internal regulations for the risk management of such products. Some banks are currently implementing these procedures in order to be able to actively use these products in the future. The risk management regulations include, for example, rules on the use of credit risk transfer instruments, limit definitions and approval procedures. Some banks devise their own valuation models for these innovative credit risk transfer instruments use established models. Some banks rely primarily on rating agencies for assessing their exposures.

Development Prospects for the Austrian CRT Market

The market for innovative credit risk transfer instruments has grown considerably in Austria in the past few years; compared with other EU countries, however, it is still in its early stages. The banks surveyed expect the market to continue to grow, especially with regard to the purchase of credit risk from other (foreign) market participants. Furthermore, the sale of Austrian borrowers' credit risk via credit derivatives, which is currently very limited owing to the lack of external ratings for many medium-sized Austrian borrowers, should also in-

crease. According to the banks' assessment, the market for securitizations of assets should also gain in importance, in particular in the area of leasing assets.

As to potential lasting shocks adversely affecting the CRT market, banks identified the following problem areas:

– Austrian banks share the concerns voiced in several studies[12] regarding the heavy concentration of counterparties in the credit derivatives market. This situation is aggravated by the fact that these relatively few international investment banks claim top positions in the "traditional" derivative business, too, and are therefore important counterparties for Austrian banks in several respects. Consequently, if one of these counterparties defaulted, both the credit derivatives market and the market for "traditional" derivatives would presumably be adversely affected.

– Another frequently mentioned problem are legal uncertainties due to differing interpretations of crucial contract parts, for example, the definition of an actual credit event or the extent of the risk transfer.[13] The ISDA (International Swaps and Derivatives Association) has created standard definitions of CRT transactions, which describe six typical cases of credit events. However, the attempt to include in a contract all possible occurrences in the lending relationship between bank and borrower, i.e. the options of deferring payment, restructuring, etc. is a big challenge for CRT contracting parties.

– If the assessments by rating agencies prove to be incorrect (e.g. risks and hazards are not detected in time), the loss of trust in rating agencies may create sustained uncertainty among market participants.

Asked about the implications of the New Basel Capital Accord (Basel II) for the credit risk transfer market, the banks surveyed expressed different opinions, especially about securitizations. Some banks believe that Basel II will foster the harmonization of banks' rating systems and credit risk will thus become more easily tradable. More uniform rating systems should also facilitate the pooling of assets of different originators in one securitization transaction (multi-seller securitizations). Other banks, in turn, argue that the high risk weights for lower-rated tranches, as suggested in the current Basel II proposals, might render investment in these positions economically unattractive; Basel II may therefore have a negative effect on the securitization market.

The Impact of Credit Risk Transfer Instruments on Banks' Customer Relationships and Business Models

At present, the banks surveyed consider the implications of credit risk transfer instruments for existing customer relationships to be rather small. Typically, the originator continues to provide servicing for the assets that

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[12] See, for example, Standard & Poor's Correct (2003), FitchRatings (2003) as well as British Bankers' Association (2002).

[13] The definition of a credit event is controversial even for banks' regular credit business. In Austria, for example, there are currently no uniform qualification criteria as to when a loan is considered "defaulted" similar to the "90-days-delay-of-payment" rule suggested by Basel II.

it securitizes; thus, for the most part, the customer relationship remains unaffected by the sale of credit risk. Similarly, the sale or purchase of credit risk through credit derivatives usually does not affect the underlying original relationship between bank and customer.

With regard to the impact of the increased use of innovative credit risk instruments on the business model of banks, no substantial changes were reported. The banks surveyed do not expect this to change in the near future. Some market participants, however, think that in the medium to long term, some Austrian banks may switch from an originate-and-hold-to-maturity approach to an originate-and-distribute approach. This would imply that banks no longer hold credit risks in their books until they mature, but transfer them to those market participants willing to bear them. Thus, each bank could best utilize its market position and its specific expertise by granting major loans without actually bearing the underlying credit risk.

Implications for Financial Stability in Austria

The increased use of credit risk transfer instruments, especially the purchase of credit risk, by Austrian banks found in the survey is primarily attributable to banks' efforts to generate additional income as well as to diversify risk. Despite the ongoing international discussion on whether the increased use of CRT instruments (see above) potentially jeopardizes financial stability, the findings of the survey indicate that the risk to financial stability in Austria is currently rather low. This can be traced to several reasons:

— In nominal terms, Austrian banks currently purchase a larger volume of loans on an unconsolidated basis via CRT instruments than they sell. This perspective, however, does not take into account portfolio effects, which might even reduce the entire credit risk of the bank thanks to increased diversification. When interpreting nominal values of CRT instruments used by banks — as done above — additional caution is advised; they serve only as a first indicator of the activities of credit institutions in the CRT market. Given banks' total assets and the amount of individual exposures, the overall volume of credit risk transfer instruments currently purchased by Austrian credit institutions still seems relatively small. Therefore the banking system has had little difficulty in tackling the problems with CRT instruments that have arisen so far, such as legal problems and a few defaults. International surveys (e.g. FitchRatings, 2003) have also concluded that, despite some uncertainty in connection with credit risk transfer agreements, relatively few legal disputes have been reported and the market for CRT instruments has obviously been working well. Despite the expected growth of the CRT market in Austria, it can be assumed that in the near future the Austrian banking system is generally likely to be highly capable of absorbing potential problems that may arise from the use of CRT instruments. Nevertheless, supervisors should closely monitor the development of these instruments, as well as the risk management practices of banks because they — as mentioned above — may jeopardize financial stability.

— The Austrian banks surveyed seem to be well aware of the risk of the prevailing high counterparty concentration. However, further analyses and observations are necessary to ascertain whether this awareness is reflected accordingly in risk management practices.

— Owing to the low securitization transaction volume no change has been found in the function of banks as intermediaries. The practice frequently used in securitizations to leave the first loss position with the originator seems to be sufficient incentive for banks to actively retain its monitoring function. In addition, it is common practice for the issuing bank (originator) to simultaneously adopt the servicing and thus also the monitoring function. Generally, banks seem to gain importance in connection with securitization transactions, since – like in stock offerings (IPOs, etc.) – customers use their banks as intermediaries and arrangers for asset securitizations and the transactions are not executed *directly* through the market.

— There has been some concern that the credit risk transfer market involves particular risks for inexperienced participants. In the future, special care has to be taken that all Austrian market participants adequately take account of the risks of these products within their risk management activities.

— As the survey has shown, Austrian banks currently use CRT instruments primarily to generate income. An improved income situation increases banks' financial power and business flexibility.

— As Austrian banks' CRT transactions are mainly cross-border transactions, there is currently no concentration risk within Austria; therefore, the systemic risk within the Austrian banking system as regards securitizations and credit derivatives can currently also be considered to be low.

Conclusion

Credit risk transfer instruments have gained importance over the past few years and triggered a debate on their possible implications for financial stability. Thanks to the rather modest CRT activities in Austria, the impact of these instruments on the Austrian financial market and, subsequently, on financial stability at present seems to be limited. As the use of credit risk transfer instruments is growing and potential negative effects on financial stability cannot be ruled out in the future, it seems sensible and warranted to continue closely monitoring the activities of Austrian market participants. Against this background, it is becoming increasingly obvious that both market participants and regulators require regularly compiled, standardized data on the use of CRT by banks and other market participants (e.g. insurance companies) on the Austrian and the international level.

Glossary[14]

Asset-backed commercial paper program (ABCP)

A form of securitization where the special-purpose entity issues commercial paper. The maturity of ABCP is usually shorter than that of term transactions, i.e. 30 to 360 days.

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[14] This glossary is a modified version of the glossary in Scheicher (2003). Scheicher (2003) also includes a detailed description of the individual CRT instruments.

The special-purpose entity in ABCP programs is usually referred to as conduit and set up by the sponsor. Rating agencies assign short-term issue ratings to ABCP programs.

Asset-backed securities (ABS)

Bonds backed by a pool of assets. This pool generates the interest and redemption payments, which are forwarded to the investors in ABS. The pool of assets may comprise, for example, loans, bonds or commercial claims.

Arranger

Supports the originator in the execution of a securitization (for a structuring fee) and, for example as an independent third party, checks the credit rating of the asset pool and determines the structure of the interest and redemption payments.

Credit enhancement

General initiatives taken to limit the credit risk that remains in the asset pool and is to be transferred to the investors. Credit enhancements are mostly granted within the asset pool, through the originator or external third parties for individual tranches of a securitization.

Credit spread

The difference between the yield of a financial instrument with a default risk and the yield of a government bond or interest rate swap.

First loss position

The position in a securitization that bears the first losses in the asset pool. This position often remains with the originator.

Credit derivative

A bilateral financial contract which enables the isolation of the credit risk from other risks (especially the market risk) a financial instrument is exposed to and which transfers it to a counterparty without forcing the transfer of the ownership of the underlying assets. In synthetic securitizations, credit default swaps (CDS) and credit linked notes (CLN) are the most important forms of credit derivatives used.

Liquidity facility

Facility used to guarantee the solvency of a securitization. Liquidity facilities are frequently required in asset-backed commercial paper programs to bridge short-term gaps between the redemption and new issue of commercial paper.

Liquidity risk

Risk that arises if an enterprise, despite being solvent, is unable to meet its payment obligations because of a lack of liquid funds.

Market risk

Risk that the value of a portfolio changes as a result of fluctuating market risk factors, such as interest rates, stock prices or exchange rates.

Mortgage-backed securities (MBS)

Bonds that, as a special form of ABS, are backed by a pool of mortgage-backed assets. MBS include residential mortgage-backed securities (RMBS) and commercial mortgage-backed securities (CMBS).

Multi-seller securitizations

In multi-seller securitizations, assets of several different originators are securitized. This facilitates the pooling

and securitization of smaller portfolios as well.

Originator

The originator in its regular business activities generates assets which constitute the asset pool for a securitization. In addition to the special-purpose entity, the investors and the servicer, the originator is the main participant in a securitization.

Servicer

Participant in a securitization who is in charge of administering, monitoring, collecting and utilizing securitized assets and collaterals (servicing). In most cases, the originator takes care of the servicing, but it can also be passed on to a third party. In addition to the special-purpose entity, the investors and the originator, the servicer is a major participant in a securitization.

Synthetic securitization

A form of securitization where only the credit risks from the asset pool are transferred to the special-purpose entity and the investors via credit derivatives, whereby the originator remains the owner of the assets.

Tranche

Securitization position to which a defined share of the asset pool's credit risk is assigned and the claims of which are senior or subordinated to the remaining tranches of a securitization. A securitization usually has at least two different tranches.

True sale securitization

A form of securitization where the ownership of the assets and collaterals and all connected risks are transferred to the special-purpose entity, for example via cession or sale. As opposed to the synthetic securitization, a true sale-securitization always has a financing effect for the originator.

Underlying asset

Asset on which a credit derivative is based.

Securitization

Securitization here means a structure which transfers credit risks from an established pool of assets in the form of at least two risk tranches which differ in their exposure to default risks and in the form of a tradable security to the investors and risk takers.

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An Empirical Analysis of the Network Structure of the Austrian Interbank Market[1]

We provide an empirical analysis of the network structure of the Austrian interbank market based on a unique data set of the Oesterreichische Nationalbank (OeNB). The analysis relies on the idea that an interbank market can be interpreted as a network where the banks form the nodes and the claims and liabilities between them define the edges of the network. This approach allows us to apply results from general network theory, which is widely applied in other scientific disciplines – mainly in physics. Specifically, we use different measures from this network theory to investigate the empirical network structure of the Austrian banking system. We focus on the question of how this structure affects the stability of the network (the banking system) with respect to the elimination of a node in the network (the default of a single bank). Regarding the network structure, we find that there are very few banks with many interbank linkages whereas there are many with only a few links. This feature of networks has been repeatedly found to be conducive to the robustness of the network against the random breakdown of links (the default of single institutions due to external shocks). In addition, the interbank network shows a community structure that exactly mirrors the regional and sectoral organization of the current Austrian banking system. Moreover, the banking network has typical structural features found in numerous other complex real world networks: a low clustering coefficient and a relatively short average shortest path length. These empirical findings are in marked contrast to network structures that have been assumed in the theoretical economic and econo-physics literature.

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Introduction

Safeguarding the stability of the financial system is one of the core tasks of central banks. They are therefore mainly concerned with problems of *systemic risk,* i.e. the risk of a large-scale breakdown of financial intermediation. Systemic risk is a key issue in banking and has two main components: The exposure of banks to common risk factors and the danger of *domino effects* of insolvencies. These domino effects play an important role in the banking system because banks are linked by a complex system of mutual credit relations. In such a system the insolvency of one institution can affect the financial positions of others and in a chain reaction increase financial distress in the banking system as a whole. From an abstract viewpoint, the system of mutual credit relations between financial institutions can be viewed as a *network* where banks form the nodes of the network and their in-terbank relations form financial links which are the network's edges. From a financial stability point of view, it is interesting to understand how the structure of this interbank network affects the financial stability properties of the banking system as a whole. This paper takes a first step in this direction by uncovering the empirical structure of the Austrian interbank network as far as it can be reconstructed from the data reported to the Austrian central bank, the Oesterreichische Nationalbank (OeNB).

In our analysis we can draw on a rich set of results from other disciplines. Especially the physics community has largely contributed to the empirical analysis and to a functional understanding of the structure of complex real world networks in general (for an overview see Dorogovtsev and Mendes, 2003). One of the most important contributions to recent network theory seems to be the inter-

pretation of network parameters with respect to the stability, robustness and efficiency of an underlying system (e.g. Albert et al., 2000). Clearly, these insights are relevant for the issues of financial stability and the network structure of mutual credit relations in the interbank market.

The network of mutual credit relations between financial institutions is considered to play a key role in the risk of contagious defaults. In the theoretical economic literature on contagion, some authors (e.g. Allen and Gale, 2000; Freixas et al., 2000; or Thurner et al., 2003) suggest network topologies that may be interesting to look at. Allen and Gale (2000) suggested studying a complete graph of mutual liabilities. The properties of a banking system with this structure are then compared to properties of systems with non-complete networks. In Freixas et al. (2000), a circular graph is contrasted with a complete graph. In Thurner et al. (2003), a much richer set of different network structures is studied. Yet, surprisingly little is known about the *actual* empirical network structure (technically also referred to as the *network topology*) of mutual credit relations between financial institutions. To our best knowledge the network topology of interbank markets has so far not been studied empirically.

In this paper we take a first step to fill this gap by analyzing a unique data set of the OeNB. Our main finding is that the network structure of the Austrian interbank market has a power law in the degree distribution. This means that there are very few banks with many interbank linkages whereas there are many with only a few links. This feature of networks has been repeatedly found to be conducive to the stability of the network against the random breakdown of links. In the present context, this means that – given the actually observed structure of interbank claims and liabilities – the banking system is relatively robust with respect to domino effects caused by the breakdown of single credit institutions which could ultimately lead to the collapse of the entire financial system. We furthermore find evidence of other features of the network – such as low clustering and the short average length of links between institutions – that confirm the general structural features of the interbank network found in the data. Finally, another important message of this work is that the rather large classes of potential networks can be narrowed to empirically relevant structures for the future modeling of interbank relations.

The Austrian Interbank Network

The interbank network is characterized by the liability (or exposure) matrix L. The entries L_{ij} are the liabilities bank i has vis-à-vis bank j. We use the convention of writing liabilities in the rows of L. If the matrix is read column-wise (transposed matrix L^T) we see the claims or interbank assets banks hold with each other. It must be noted that L is a square matrix but not necessarily symmetric. The diagonal of L is zero, i.e. no bank self-interaction exists. In the following we are looking for the bilateral liability matrix L of all (about $N = 900$) Austrian banks, the central bank (OeNB) and an aggregated foreign banking sector. Our data consist of 10 L matrices, each representing liabilities for quarterly single month periods between the years 2000 and 2003. To obtain the Austrian interbank network from central bank data

we draw on two major sources: we exploit structural features of the monthly balance sheet returns of Austrian banks and the Major Loans Register in combination with an estimation technique.

For historical reasons, the Austrian banking system is organized in sectors. The large majority of banks belong to one of seven sectors: savings banks (S), Raiffeisen credit cooperatives (R), Volksbank credit cooperatives (VB), joint stock banks (JS), state mortgage banks (SM), building and loan associations (BLA), and special purpose banks (SP). Banks have to break down their balance sheet reports on claims and liabilities vis-à-vis other banks according to the different banking sectors, the central bank and foreign banks. This practice of reporting on balance interbank positions breaks the liability matrix L down to blocks of sub-matrices for the individual sectors. The savings banks and the Volksbank sector are organized along a two-tier structure with a sectoral head institution. The Raiffeisen sector is organized along a three-tier structure, with a head institution for every federal province of Austria. The provincial head institutions are subsumed under a central institution, Raiffeisenzentralbank (RZB), which is at the top of the Raiffeisen structure. Banks with a head institution have to disclose their positions vis-à-vis the head institution, which gives additional information on L. Since many banks in the system hold interbank liabilities only vis-à-vis their head institutions, it is possible to exactly pin down many entries in the L matrix. In a next step, this information is combined with the data from the OeNB's Major Loans Register. This register contains all interbank loans above a threshold of EUR 350,000.

This information provides us with a set of constraints (inequalities) and zero restrictions for individual entries L_{ij}. Up to this point one can obtain about 90% of the L matrix entries exactly.

For the rest we employ an estimation routine based on local entropy maximization, which has already been used to reconstruct unknown bilateral interbank exposures on the basis of aggregate information (Upper and Worms, 2002; and Blien et al., 1997). The procedure finds a matrix that fulfils all the known constraints and treats all other parts (unknown entries in L) as contributing equally to the known row and column sums. These sums are known since the total claims vis-à-vis other banks have to be reported to the central bank. The estimation problem can be set up as follows: Assume we have a total of K constraints. The column and row constraints take the form

$$\sum_{j=1}^{N} L_{ij} = b_i^r \, \forall \, i$$
$$\text{and} \qquad (1)$$
$$\sum_{i=1}^{N} L_{ij} = b_j^c \, \forall \, j$$

with r denoting *row* and c denoting *column*. Constraints imposed by the knowledge about particular entries in L_{ij} are given by

$$b^l \leq L_{ij} \leq b^u \text{ for some } i, j. \quad (2)$$

The aim is to find the matrix L (among all the matrices fulfilling the constraints) that has the least discrepancy to some a-priori matrix U with respect to the (generalized) cross entropy measure

$$C(L,U) = \sum_{i=1}^{N} \sum_{j=1}^{N} L_{ij} \ln\left(\frac{L_{ij}}{U_{ij}}\right). \quad (3)$$

U is the matrix which contains all known exact liability entries. For

those entries (bank pairs) ij on which we have no information from central bank data, we set $U_{ij} = 1$. We use the convention that $L_{ij} = 0$ whenever $U_{ij} = 0$ and define $0\ln(\frac{0}{0})$ to be 0. This is a standard convex optimization problem, the necessary optimality conditions can be solved efficiently by an algorithm described in Fang et al. (1997) and Blien et al. (1997). As a result, we obtain a rather precise (see below) picture of the interbank relations at a particular point in time. Given L we plot the distribution of its entries in chart 1(b). The distribution of liabilities follows a power law for more than three decades with an exponent of -1.87, which is within a range well known from wealth- or firm-size distributions (Solomon and Levy, 2000; and Axtell, 2001).

Extracting the Network Topology from the Interbank Data

There are three possible approaches to describe the structure as a graph. The first approach is to look at the liability matrix as a *directed graph*. The vertices are all Austrian banks. The central bank, the OeNB, and the aggregate foreign banking sector are represented by a single vertex each. The set of all initial (starting) vertices is the set of banks with liabilities in the interbank market; the set of end vertices is the set of all banks that are claimants in the interbank market. Therefore, each bank that has liabilities vis-à-vis other banks in the network is considered an initial vertex in the directed liability graph. Each bank for which this liability constitutes a claim, i.e. each bank acting as a counterparty, is considered an end vertex in the directed liability graph. We call this representation the *liability adjacency matrix* and denote it by A^l (^{l} indicating

liability). $A^l_{ij} = 1$ whenever a connection starts from row node i and leads to column node j, and $A^l_{ij} = 0$ otherwise. If we take the transpose of A^l we get the interbank asset matrix $A^a = (A^l)^T$. A second way to look at the graph is to ignore directions and regard any two banks as connected if they have either a liability or a claim vis-à-vis each other. This representation results in an undirected graph whose corresponding adjacency matrix $A_{ij} = 1$ whenever we observe an interbank liability or claim. Our third graph representation is to define an undirected but weighted adjacency matrix $A^w_{ij} = L_{ij} + L_{ji}$, which measures the gross interbank interaction, i.e. the total volume of liabilities and assets for each node. The decision on which representation to use depends on the questions addressed to the network. For statistical descriptions of the network structure, the matrices A, A^a, and A^l will be sufficient; to reconstruct the community structure from a graph, the weighted adjacency matrix A^w will be the more useful choice.

Functional Clusters

There exist various ways to find functional clusters within a given network. Many algorithms take into account local information around a given vertex, such as the number of nearest neighbors shared with other vertices and the number of paths to other vertices (see, e.g., Wasserman and Faust, 1994; or Ravasz et al., 2001). Recently a global algorithm was suggested which extends the concept of vertex betweenness (Freeman, 1977) to links (Girvan and Newman, 2001). This elegant algorithm outperforms most traditional approaches in terms of misspecifications of vertices to clusters; however it does not pro-

(a)

(b)
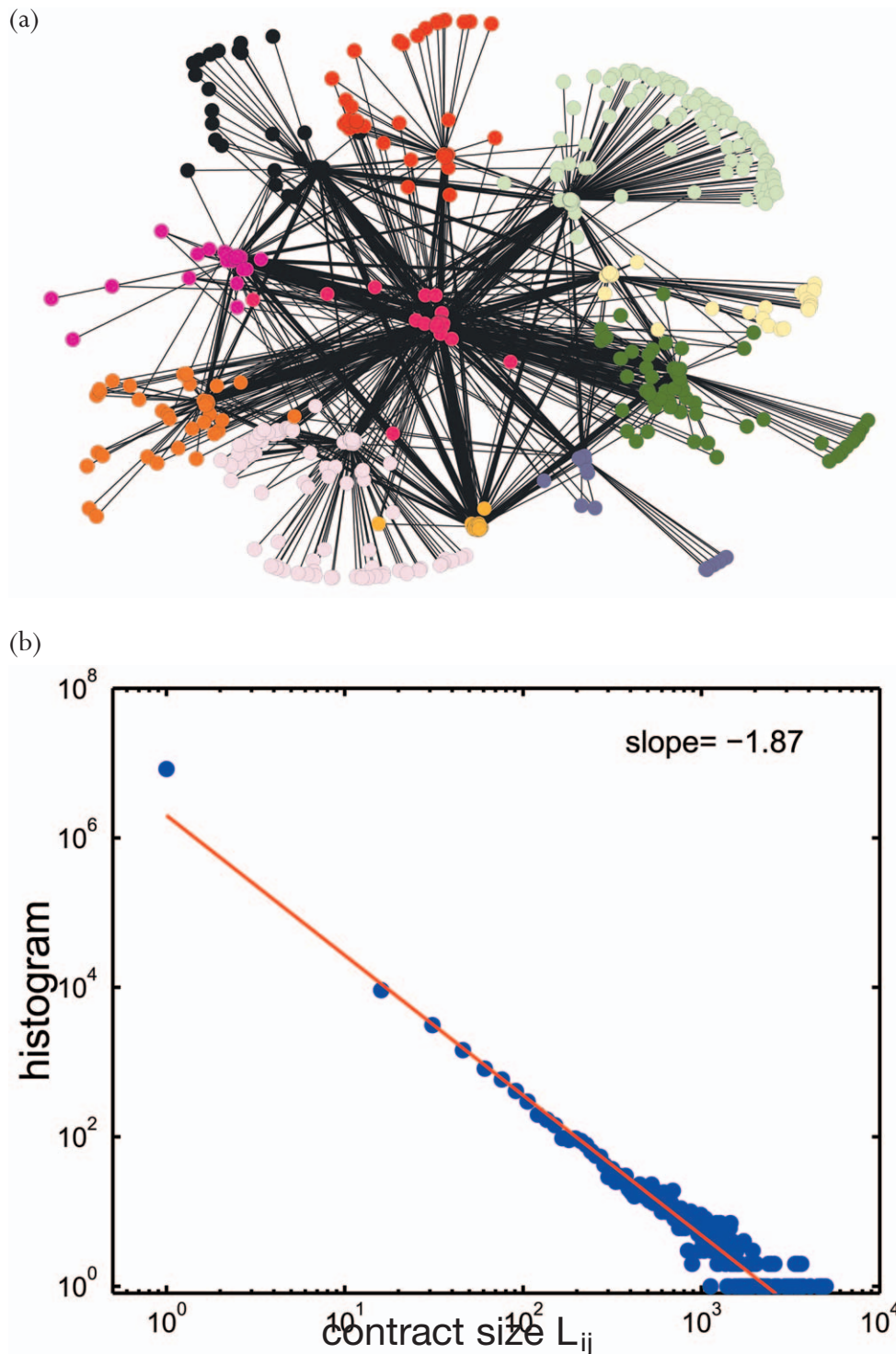
Chart 1: The Austrian Interbank Network and Histogram of Contract Size

Note: The banking network of Austria (a). Clusters are grouped (colored) according to regional and sectoral organization: R sector with its federal sub-structure: yellow RB, orange RSt, light orange RK, gray RV, dark green RT, black RN, light green RO, light yellow RS. VB sector dark grey, S sector orange-brown, other pink. Data are from the September 2002 L matrix, which is representative for all the other matrices. In (b) we show the contract size distribution within this network (histogram of all entries in L) which follows a power law with exponent -1.87. Data are aggregated from all 10 matrices.

vide a measure for the differences of clusters. In Zhou (2003a) an algorithm was introduced which – while having at least the same performance rates as Girvan and Newman (2001) – provides such a measure, the so-called dissimilarity index. The algorithm is based on a distance definition presented in Zhou (2003b).

In analyzing our interbank network we apply the latter algorithm to the weighted adjacency matrix A^w. As the only preprocessing step we clip all entries in A^w above a level of EUR 300 million for numerical reasons, i.e. $A^w_{clip} = \min(A^w, 300\text{m})$. The community structure obtained in this way (chart 1a) can be compared with the actual community structure in the real world. Chart 2 shows the result for the community structure obtained from one representative data set.
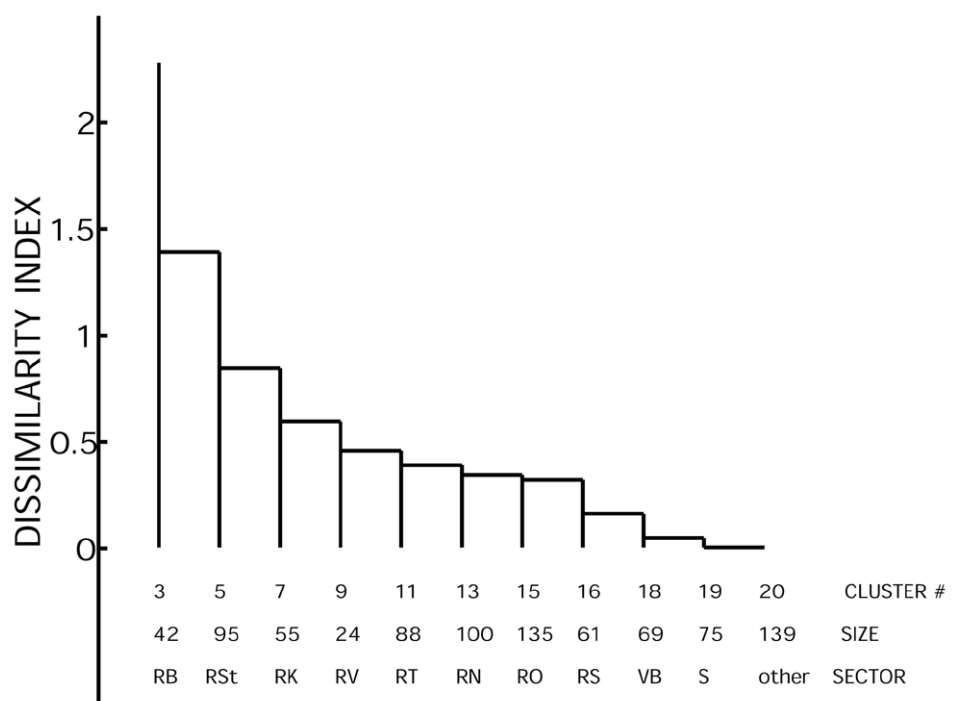
Chart 2: Dissimilarity Index of Different Banking Groups
Note: Community structure of the Austrian interbank market network from September 2002 data. The dissimilarity index is a measure of the "differentness" of the clusters.

The results from other datasets are practically identical. The algorithm identifies communities of banks which are organised along a two- or three-tier structure, i.e. the R, VB, and S sectors. For banks which are not structured in a hierarchical way, such as banks in the SP, JS, SM, BLA sectors, no strong community structure is expected. By the algorithm these banks are grouped together in a cluster called 'other'. The Raiffeisen sector, with its substructure in the federal provinces, is further grouped into clusters which are clearly identified as R banks within one of the eight federal provinces (B, St, K, V, T, N, O, S[3]). In chart 2 these clusters are marked as, e.g., 'RS', with 'R' indicating the Raiffeisen sector and 'S'

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[3]   B for Burgenland, St for Styria, K for Carinthia, V for Vorarlberg, T for Tyrol, N for Lower Austria, O for Upper Austria, S for Salzburg.

the province of Salzburg. Overall, there were 31 misspecifications into wrong clusters within the total $N = 883$ banks, which is a misspecification rate of 3.5 %. This result demonstrates the quality of the dissimilarity algorithm and – more importantly – the quality of the entropy approach to reconstruct matrix L.

Degree Distribution

Like many real world networks, the degree distribution of the interbank market follows a power law for all three representations A^l, A^a, and A. Charts 3 (a) and (b) show the out-degree (liabilities) and in-degree (assets) distribution of the vertices in the interbank liability network. Chart 3 (c) shows the degree distribution of the interbank connection graph A. In all three cases we find two regions which can be fitted by a power law. Accordingly, we fit one regression line to the small degree distribution and one to the obvious power tails of the data using an iteratively re-weighted least square algorithm. The power decay exponents γ_{tail} to the tails of the degree distributions are $\gamma_{tail}(A^l) = 3.11, \gamma_{tail}(A^a) = 1.73$ and $\gamma_{tail}(A) = 2.01$. The size of the out-degree exponent is within the range of several

other complex networks, like, e.g., the collaboration networks of actors (3.1; Albert and Barabási, 2000), sexual contacts (3.4; Liljeros et al., 2001); exponents in the range of 2 are, for example, the Internet (2.1; Albert et al., 1999) or mathematicians' collaboration networks (2.1; Barabási et al., 2002), and examples for exponents of about 1.5 are e-mail networks (Ebel et al., 2002) and co-autorships (1.2; Newman, 2001). For the left part of the distribution (small degrees) we find $\gamma_{small}(A^l) = 0.69, \gamma_{small}(A^a) = 1.01$ and $\gamma_{small}(A) = 0.62$. These exponents are small compared to other real world networks. One example are food webs with a coefficient of 1.0. (see Montoya and Solé, 2000). We have checked that the distribution for the low degrees is almost entirely dominated by banks of the R sector. Typically in the R sector most small Raiffeisen banks have links to their federal provincial head institutions and very few contacts with other banks; this leads to a strong hierarchical structure, which is clearly visible in chart 1(a). This hierarchical structure is perfectly reflected by the small scaling exponents (Trusina et al., 2003).

(a)

(b)

(c)
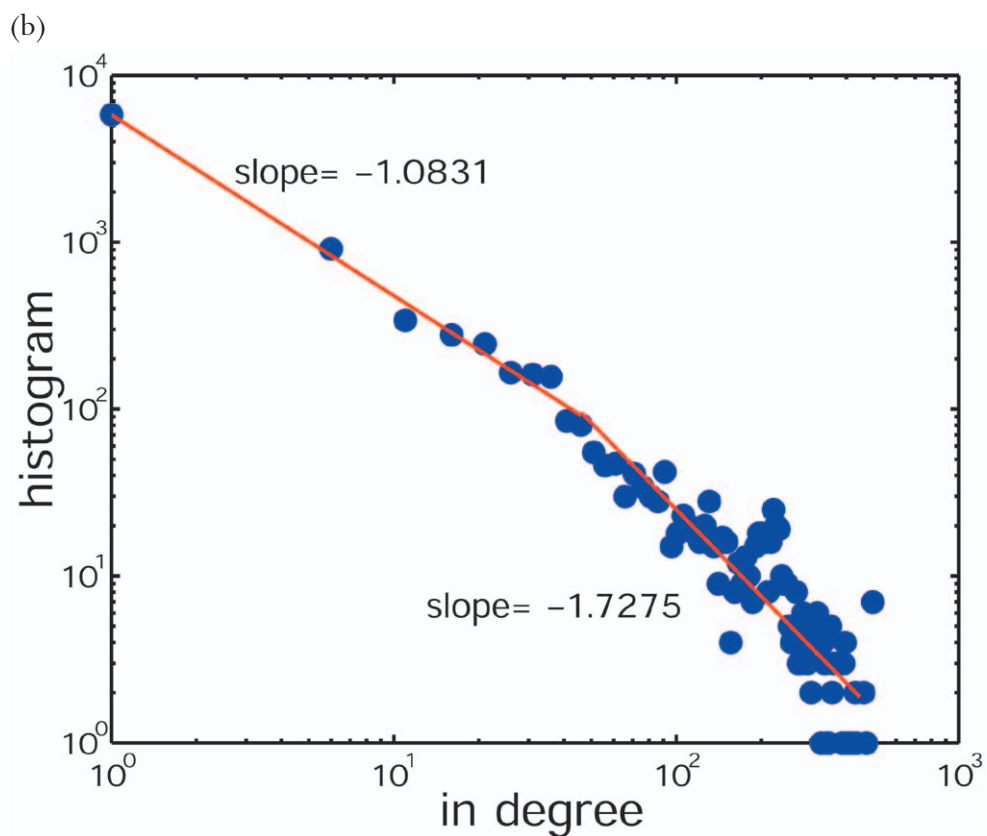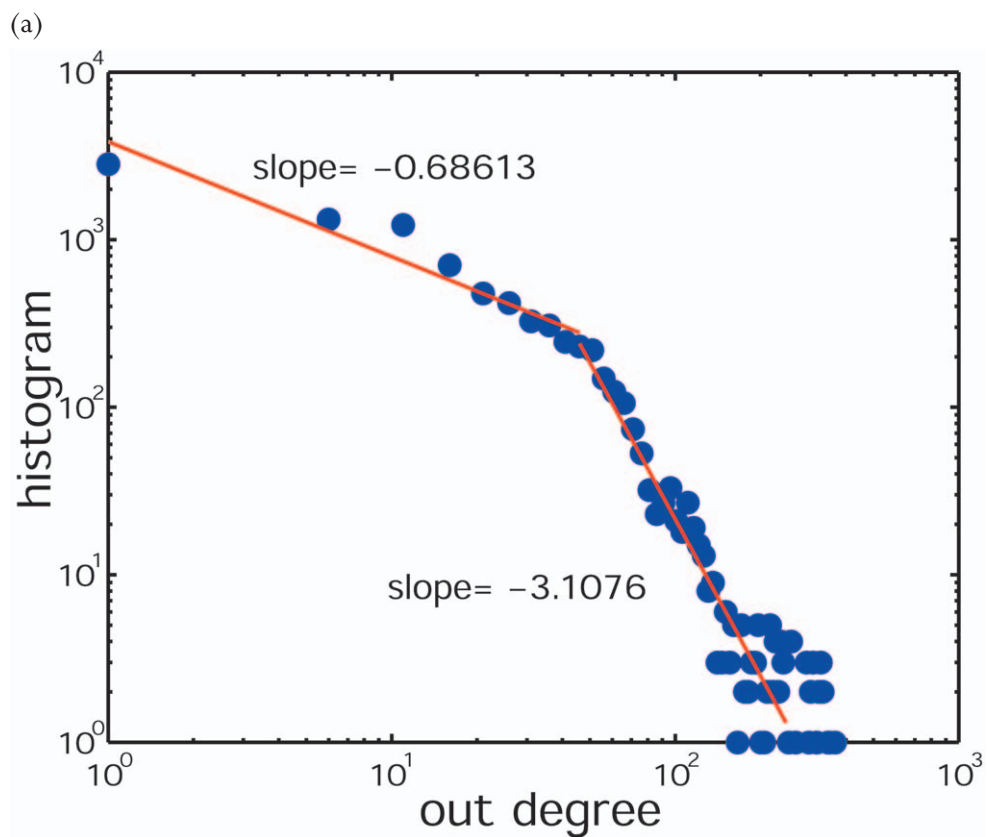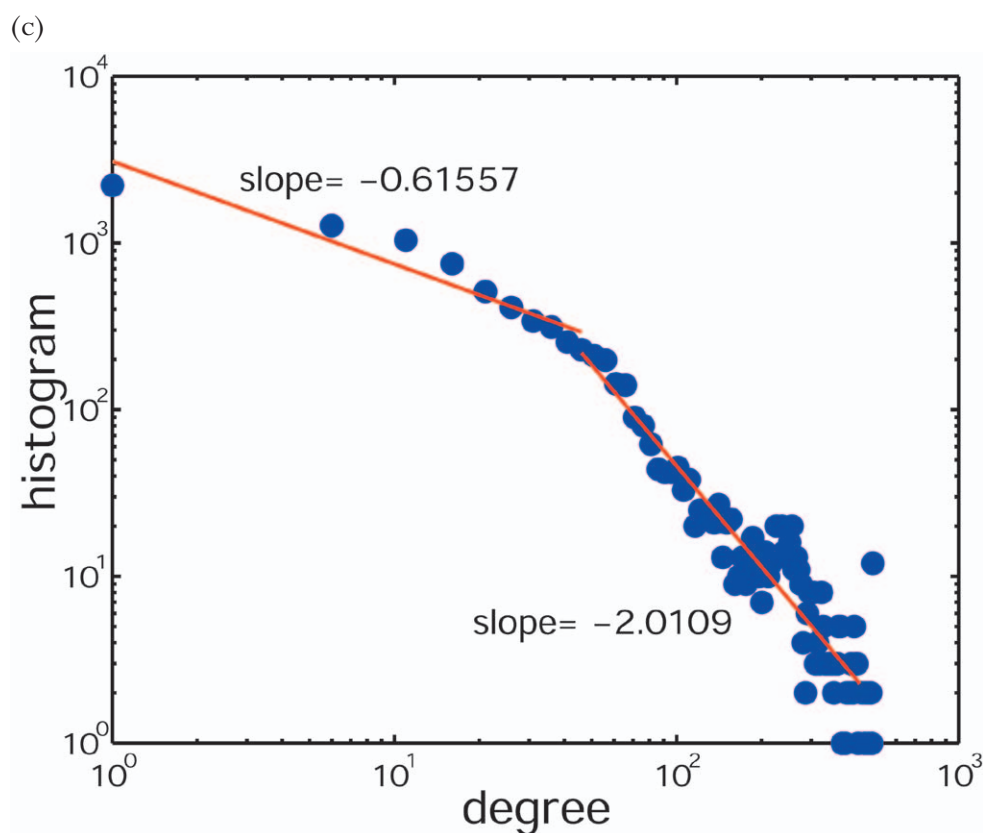
Chart 3: Degree Distribution

Note: Empirical out-degree (a) and in-degree (b) distribution of the interbank liability network. In (c) the degree distribution of the interbank connection network is shown. All the plots are histograms of aggregated data from all the 10 datasets.

Clustering Coefficient

To quantify clustering phenomena within the banking network, we use the so-called clustering coefficient C defined by

$$C = \frac{3 \times (number\ of\ triangles\ on\ graph)}{number\ of\ connected\ triples\ of\ vertices} \quad (4)$$

It provides the probability that two vertices that are connected to any given vertex are also connected with one another. A high clustering coefficient means that two banks that have interbank connections with a third bank have a greater probability to have interbank connections with one another than any two banks randomly chosen on the network. The clustering coefficient is well defined in undirected graphs only. We find the clustering coefficient of the connection network (A) to be $C = 0.12 \pm 0.01$ (mean and standard deviation over the 10 data sets), which is relatively small compared to other networks. In the context of the interbank market, a small C is a reasonable result. While banks may be interested in some diversification of interbank links, keeping a link is also costly. So if, for instance, two small banks have a link with their head institution there is no reason for them to additionally open a link between themselves.

Average Path Length

We calculate the average path length for the three networks A^l, A^a, A with the Dijkstra algorithm (Gibbons, 1985) and find an average path length of $\bar{\ell}(A^l) = \bar{\ell}(A^a) = 2.59 \pm 0.02$. Note the

possibility that in a directed graph not all nodes can be reached and we restrict our statistics to the giant components of the directed graphs. The average path length in the (undirected) interbank connection network A is $\bar{\ell}(A) = 2.26 \pm 0.03$. From these results the Austrian interbank network looks like a very small world with about three degrees of separation. This result looks natural in the light of the community structure described earlier. The two- and three-tier organization with head institutions and sub-institutions apparently leads to short interbank distances via the upper tier of the banking system and thus to a low degree of separation.

Conclusions

Our analysis provides a first picture of an interbank network by studying a unique dataset for the Austrian interbank market. Even though the Austrian interbank market is small it is structurally very similar to the interbank system in many European countries, including the large economies of Germany, France and Italy. We show that the liability (contract) size distribution follows a power law. These results can be understood as being driven by the underlying size and wealth distributions of banks which show similar power exponents. We find that the interbank network shows — like many other realistic networks — power law dependencies in the degree distributions. We were able to show that different scaling exponents relate to different network structures in different banking sectors within the total network. The scaling exponents of the Raiffeisen credit cooperatives (R) are very low, due to the hierarchical structure of this sector, while the other banks have scaling exponents also found in other complex real world networks. Regardless of the size of the scaling exponent, the existence of a power law is a strong indication of a stable network with respect to random bank defaults or even intentional attack (Albert et al., 2000). The interbank network shows a low clustering coefficient, a result that mirrors the analysis of community structure which shows a clear network pattern, where banks would first have links with their head institutions, whereas these few head institutions have links between each other. A consequence of this structure is that the interbank network is a small world with a very low "degree of separation" between any two nodes in the system. A further important message of this paper is that our results allow excluding large classes of unrealistic types of networks for future modeling of interbank relations which have so far been used in the literature.

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The Transformation of the Romanian Financial and Banking Sector

Stephan Barisitz

Compared to other transition countries, the Romanian banking sector and stock exchange are small. However, Romanian banking has been on the catching-up route since the economic crisis the country experienced in 1997–99. Banking reform has achieved considerable progress since then. Today a major share of the assets of the sector is in foreign ownership, with Austrian banks in prominent positions. As a consequence of the swift credit expansion in 2002 and 2003 as well as of continuing structural problems and weaknesses, the risk potential has risen recently, though. Overall, given the size of the country, the Romanian financial sector bears an impressive growth potential, which, however, can only be tapped if the authorities persevere with their reform efforts.

Introduction

Compared to other countries, the Romanian banking sector and stock exchange are small. According to recent estimates, only about one-third of the population is reported to possess a bank account and less than one-fifth of Romanian enterprises take out bank loans. In terms of loan volume to GDP, Romania accounts for less than half of the average level of Central European transition countries, which themselves are still substantially behind the EU-15. Currently, banking intermediation (in terms of assets to GDP or credit to GDP) in Romania may be comparable to the level witnessed in Austria in the early and mid-1960s. However, Romanian banking activities have been on the catching-up lane since the crisis the country experienced in 1997–99. Today a major share of the assets of the banking sector is in foreign ownership, with Austrian banks in prominent positions. As a consequence of the swift credit expansion in 2002 and 2003 as well as of continuing structural problems, the risk potential has risen recently, though.[1] Notwithstanding recent dynamic growth, non-bank intermediation has remained on a very modest level of development in Romania. Overall, given the size of the country, the Romanian financial sector bears an impressive growth potential. Chart 1 gives a comparative illustration of this potential with respect to the banking sphere.

Chart 1

Banking Sectors: Degree of Intermediation

Total assets of the banking sector in % of GDP in 2002

Source: Bank Austria Creditanstalt.

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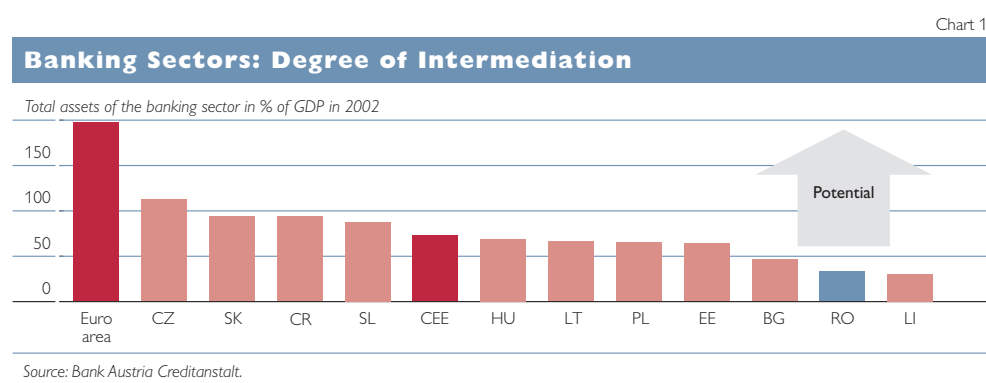
[1] IMF (2002, p. 19); Banca Naţională a României (2003c, p. 31); Economic Intelligence Unit (2003); National Bank of Greece S.A. (2003, p. 8).

Banking and Financial Crises and Reform Measures

Until 1998 the Romanian commercial banking system was overwhelmingly state-owned. Credit institutions granted loans to a largely unrestructured real sector dominated by big, inefficient state-owned factories, subject to quasi-automatic refinancing by the Romanian central bank, which conducted an accommodative monetary policy. Inflation rates were very high. For example, CPI inflation (year-end) amounted to 62% in 1994 and 57% in 1996. The Bucharest Stock Exchange was established in 1995, the over-the-counter market (RASDAQ) in 1996. The latter traded shares created in the wake of Romania's mass privatization program. The National Securities Commission was also set up in the mid-1990s. Following early years of rapid expansion, stock values and turnover in both markets were badly affected by repercussions of the turmoil in Asian and Russian financial markets in 1997 and 1998. Supervision, initially at a rudimentary stage, improved only slowly.

After the election of a more strongly reform-minded government at end-1996, serious macroeconomic stabilization policies and structural reforms were initiated. The Romanian central bank (Banca Naţională a României, BNR) tightened its hitherto lax banking supervision. The quasi-automatic central bank refinancing of loans was discontinued. A number of large state-owned credit institutions thereupon experienced serious financial difficulties and could only be kept afloat with sizeable public financial assistance. This goes particularly for Bancorex, the former state foreign trade bank, and for Banca Agricola, an institution specializing in the financing of agriculture.

In the first half of 1998 the government carried out important legal reforms: a new central bank law and a new banking law were passed, which strengthened the independence of the BNR and its role in banking supervision. At the same time, the new bank insolvency law encountered difficulties in application. Although in 1998 Romanian bookkeeping standards were largely adjusted to French standards, which resemble IAS, some important differences have remained; for instance, loan-loss provisioning requirements have been weaker and consolidated reporting is not obligatory in Romania. The Bank Deposit Guarantee Fund was established earlier in 1996.

Given the strong initial contractionary effect of the reform efforts, in late 1997 and in 1998 the government partly reverted to stop-and-go macroeconomic policies. The effects of the Russian crisis of 1998 aggravated the instable economic situation, which contributed to runs on both above-mentioned banks, triggering the collapse of Bancorex in 1999. By the time, more than two-thirds of Bancorex's loans were reported to be non-performing. The authorities decided to shut down the bankrupt bank. Parts of Bancorex were liquidated, some dubious assets were transferred to the consolidation agency AVAB, created the year before. The BNR absorbed Bancorex's liabilities to foreign-owned banks. The remaining parts of Bancorex were merged with the state-owned Banca Comercială Română, which thus became the largest Romanian commercial bank. Some smaller credit institutions also collapsed in 1999 and 2000. By contrast, Banca Agricola survived due to re-

peated recapitalization and restructuring measures taken by the authorities. Banca Agricola also ceded large nonperforming claims to the consolidation agency.

The financial cost of the various recapitalization and public support schemes for the institutions in distress amounted to about 10% of GDP.[2] The shock of the collapse of Bancorex made banks generally more prudent in lending; at the same time portfolios were restructured in favor of lower-risk assets (including treasury bills). In late 1999 the BNR established an early warning system for its supervisory authorities: Credit institutions are assessed and ranked on a scale of 1 to 5, institutions that rate 5 being considered the weakest performers. The system incorporates regulations for troubled banks and specifies the point at which a bank's license is to be withdrawn and bankruptcy proceedings triggered. The creation of the Credit Information Bureau at the BNR in December 1999 aims at enhancing transparency for lenders. Thus, the legal and institutional environment for banking in Romania had improved considerably by the end of the 1990s.

With hindsight, 1999 proved to be a kind of structural turning point for the Romanian economy. The same year, the authorities carried out the first privatizations of major Romanian banks to foreign strategic investors: A majority stake in Banca Română pentru Dezvoltare ("Romanian Development Bank") was sold to Société Générale. General Electric Capital and Banco Português de Investimento purchased the majority of Banc Post.

Later on, parts of Banc Post were acquired by EFG Eurobank Ergasias (of Greece). In addition, a number of smaller credit institutions were liquidated in recent years. After considerable delay and some further injections of resources, the authorities in April 2001 succeeded in selling Banca Agricola to Raiffeisen Zentralbank (RZB, which received a majority share) and the Romanian-American Investment Fund. In May 2002 Banca Agricola was merged with the Romanian branch of RZB and renamed Raiffeisen Bank. Later, RZB took over the share of the Romanian-American Investment Fund and now holds over 99% of the credit institution. Restructuring Raiffeisen Bank has not been easy, since good clients had been lost and trust had to be regained. Since the merger of 2002, losses have been shrinking, the breakeven point is expected to be reached in 2003–04. Raiffeisen Bank focuses on corporate business, but is also expanding retail activities and trade finance. Based on its ownership of about 210 former Banca Agricola branches, Raiffeisen Bank is aiming to become a leading universal bank in the Romanian market.

Notwithstanding progress in banking reforms, a number of serious unsolved problems remained. Capital markets, more particularly the poorly regulated investment funds sector, were destabilized by the collapse of the country's largest fund, Fondul Naţional de Investiţii (FNI), in May 2000. The collapse was reportedly caused by mismanagement and fraudulent practices. But the erosion of trust in this case extended much fur-

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[2]   Compared to other transition countries, this corresponds to a medium level. Public financial cleaning-up costs for the banking sector (as a percentage of GDP) in Poland have been below those in Romania; respective costs in the Czech Republic, Hungary and Bulgaria have been above Romanian costs (Isărescu, 2003).

ther, since the FNI collapse had repercussions on the state-owned savings bank Casa de Economii și Consemnatiuni (CEC); the latter was a shareholder in FNI's management company, had invested in FNI certificates and issued a guarantee for investments in the Fund. The chief FNI manager left the country and several officials of the National Securities Commission were arrested. It turned out that for years the FNI had been little more than a pyramid scheme. Weaknesses of the regulatory and institutional framework were one of the root causes of this major scandal.

The FNI collapse put pressure on the largely unregulated so-called "popular banks," which functioned as credit cooperatives without deposit insurance. The swift proliferation of partly dubious deals led to massive undercapitalization in this sphere. The largest institution of this type, the Banca Populara Romană, closed its doors in June 2000 after being unable to meet depositor demands. An emergency ordinance issued in July spelled out the central bank's powers of licensing, supervising and monitoring credit cooperatives. The licensing of new popular banks was temporarily suspended.

Economic Recovery and Expansion of Banking Activities

In 2000 the authorities embarked on prudent macroeconomic stabilization efforts. Some political instability was overcome by the election of a new government at end-2000, which sustained the stabilization and reform policies. The same year, the external economic situation, particularly in the EU, brightened and the decade-long conflict in neighboring former Yugoslavia drew to an end. Inflation and budget deficits slowly came down. But price rises were still reaching levels exceeding those of neighboring countries. With the strengthening of the economic upswing in 2001 and the following years (see table 1, real GDP 2001: +5.7%, 2002: +4.9%, 2003 (preliminary): +4.7% year-on-year), market participants gained more confidence and credit institutions expanded their activities speedily (although proceeding from a low point of departure).

Certain successes in real sector structural reforms (for example the sale of the country's biggest steel producer, Sidex, to a British-Indian investor in early 2002) supported the development. Private investment

Table 1

Romania: Macroeconomic and Monetary Indicators

Year	GDP growth (real)	CPI inflation (year-end)	Exchange rate (ROL/USD, year-end)	Exchange rate (ROL/EUR and ECU, year-end)	Broad money (M2, year-end)	Broad money (M2, year-end)	Budget balance (general government)	Current account balance	Gross foreign exchange reserves (excl. gold, year-end), EUR (ECU)	Gross foreign debt (year-end)
	%		ROL		change in %	% of GDP			million	% of GDP
1996	4.0	56.9	4,035	5,182	+66.0	27.9	−3.9	−7.3	426	23.6
1997	−6.1	151.4	8,023	8,859	+104.9	24.6	−4.6	−6.1	1,987	26.9
1998	−4.8	40.6	10,951	12,814	+48.9	24.8	−5.0	−6.9	1,175	23.5
1999	−1.2	54.8	18,255	18,345	+45.0	24.6	−3.5	−3.6	1,519	25.5
2000	2.1	40.7	25,926	24,142	+38.0	23.0	−3.7	−3.7	2,682	28.6
2001	5.7	30.2	31,597	27,881	+46.2	23.2	−3.5	−5.5	4,445	29.4
2002	4.9	17.8	33,490	34,919	+38.1	24.9	−2.7	−3.4	5,877	30.4
2003[1]	4.7	14.1	32,595	41,117	+32.6	25.1	−2.4	−5.8	6,399	31.3

Source: BNR, WIIW, IMF, EBRD, OeNB.
[1] Preliminary data or estimates.

Table 2

Romania: Banking Sector-Related Indicators

Year	Number of banks (of which foreign-owned, year-end)	Total assets of banking sector	Share of state-owned banks in total banking sector assets	Deposit rate (average, year-end)	Lending rate (average, year-end)	Deposits of the nonbank sector (year-end)	Credit volume (year-end)	Loans to enterprises	Share of bad loans in total loans	Capital adequacy (capital/risk weighted assets ratio, year-end)	ROA (net)	ROE (net)
		% of GDP	%	% p.a.		% of GDP	change in %	% of GDP	%			
1996	40 (19)	..	..	38.1	55.8	..	..	..	48.0	14.0	..	..
1997	43 (23)	..	..	51.6	63.7	..	+82.1	..	56.6	13.6	..	..
1998	45 (25)	..	71.0	38.3	56.9	..	+95.2	16.6	58.5	10.3	0.2	1.3
1999	41 (26)	..	46.8	45.4	65.9	..	+26.8	10.6	35.4	17.9	−2.0	−15.0
2000	41 (29)	29.2	46.1	32.7	53.5	20.0	+11.5	9.3	6.4	23.8	1.5	12.5
2001	41 (32)	30.5	41.8	23.4	40.6	20.4	+26.8	10.1	3.9	28.8	3.1	21.8
2002	39 (32)	31.6	40.4	12.8	28.9	21.7	+39.8	11.9	2.7	24.6	2.7	19.7
2003	38 (29)[1]	..	38.2[1]	9.9[2]	25.1[2]	..	+50.4	..	11.0[3]	23.2[2]	2.4[4]	16.9[4]

Source: BNR, IMF, EBRD.
[1] *August 2003.*
[2] *May 2003.*
[3] *End-June 2003, after revision (see text).*
[4] *End-March 2003.*

in export-oriented consumer goods industries gathered momentum and triggered some gains in competitiveness. Small and medium-sized enterprises (SMEs) multiplied and became an important and dynamic component of the economy. Still, the restructuring of large state-owned and often inefficient and loss-making industries and particularly of the energy utilities remained sluggish overall and was causally related with the chronic existence of extensive payment and tax arrears.[3] Large-scale privatization projects slowed down in 2003. Although the Stand-by Arrangement reached with the IMF in October 2001 was subject to intermittent slippages, it has nevertheless made progress.[4]

The assets of the banking sector grew from 29.2% of GDP in 2000 to 31.6% in 2002. This corresponds to around EUR 15.1 billion. Loans to enterprises increased from 9.3% of GDP to 11.9% in 2002 (table 2). The year 2002 witnessed a real corporate loan expansion of 29%. In 2003 the speed of expansion accelerated to

49%, which can in fact be considered a credit boom. Lower returns on government debt paper, on deposits with the BNR or on arbitrage transactions on the forex market contributed to the relatively enhanced attractiveness of lending. The increase in loans focused on private and privatized firms, corporate clients as well as SMEs, whereas lending to state-owned firms has been contained.

The maturity structure of loans moved somewhat from predominantly short-term to medium-term, which inter alia reflected increased demand for financing investment projects. Currently about half of all bank loans are short-term (that is with less than one year maturity), the other half is medium- and long-term. Consumer credits, particularly mortgage loans and loans for the purchase of consumer durables, have grown extremely fast and even multiplied, however from a basis of almost zero. Although real deposit interest rates are still in negative territory, deposits of nonbanks have grown from 20.0%

[3] *Daianu (2002).*
[4] *Wagstyl and McAleer (2003).*

of GDP in 2000 to 21.7% in 2002. Bank accounts have remained largely short-term, which reflects some lingering lack of savers' trust in banks. The rapidity of the credit expansion has triggered concern on the part of the BNR management as well as the IMF, given the structural weaknesses of the economy.[5] Risk analysis and management capacities of credit institutions still seem to be insufficient.[6]

Furthermore, the share of large loans denominated in foreign currencies has been on the rise. Whereas foreign currency loans had made up almost 60% of the credit volume at the beginning of 2001, they comprised more than 70% two years later. Among the foreign currencies in which the loans are denominated, the euro has gained weight. Whereas in early 2001, the common European currency had accounted for about one-third of banks' foreign exchange loans, in mid-2003 about half of these loans was denominated in euro, the other half was denominated in U.S. dollar.[7] Since it is not at all clear whether borrowers have substantial hard currency proceeds, the exchange rate risk can turn into a possible credit risk for banks. Thus, a marked slide of the leu could pose a problem for credit institutions. The Romanian exchange rate regime is a managed float; put more precisely the BNR conducts a steady and controlled nominal devaluation of the Romanian leu against a reference currency basket (up to end-2003: 60% euro, 40% U.S. dollar weights; as of 2004: 75% euro, 25% U.S. dollar weights). The goal is a trade-off between reducing inflation and maintaining international competitiveness. The inflation rate, albeit on the decline, came to 17.9% in 2002 and 14.1% in 2003 (end year), which is still higher than in Romania's neighboring countries, not to speak of Central European countries.

The current account deficit has also been relatively high. After a decline in 2002 (to 3.4% of GDP) it widened again in 2003, on the back of increased lending and rising wages, triggered by a sizeable hike of the minimum wage at the beginning of the year. According to preliminary data, the imbalance rose to 5.8% of GDP in 2003.[8] On average, between one-half and two-thirds of the current account shortfall have been financed by foreign direct investment. Real appreciation and loss of competitiveness do not appear to be a problem so far, given that in recent years the CPI-based real effective exchange rate has appreciated only slightly and that the ULC-based real effective exchange rate has steadily depreciated. In fact, this would imply an improvement in competitiveness. The fact that the leu again depreciated against the euro in the last quarter of 2003 (while remaining more or less stable against the declining U.S. dollar) was certainly not an impediment to Romania's competitiveness. Gross foreign debt, while relatively low, has been on a slight rise in recent years (coming to 29% of GDP in 2000 and 31% in 2003). Expanding gross foreign exchange reserves reached EUR 6.4 billion in December 2003 (three and

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[5]   Romania: Ministry of Finance, Banca Naţională a României (2003e, p. 56).

[6]   Economic Intelligence Unit (2003); National Bank of Greece S.A. (2003, p. 8).

[7]   One of the reasons for the evolution of the foreign currency structure was households' increasing resort to bank borrowings for purchasing cars and real estate, the prices of which are set in euros (Banca Naţională a României, 2003d, p. 32).

[8]   Banca Naţională a României (2004b, p. 1).

a half import months). Their expansion was, inter alia, driven by the issuance of a EUR 700 million eurobond in the summer of 2003. The full liberalization of short-term capital movements is not planned to take place before Romania's EU accession (envisaged for 2007).

On the other hand, the increase of foreign currency loans has not only affected trade and current account balances. It has also contributed to putting downward pressure on the leu. This corresponds to a reversal of the previous situation, which had seen capital flow-induced appreciation tendencies of the Romanian currency. Starting in 2002, the BNR has attempted to rein in the growth of foreign currency loans. For instance, in November 2002 reserve requirements were adjusted upwards for foreign currency deposits. The IMF has repeatedly advised the authorities to increase capital requirements for foreign currency loans.[9] In 2003 the dynamics of credit expansion changed and leu loans grew more quickly than foreign exchange loans.[10] The BNR recently tightened its monetary stance by raising the benchmark overnight deposit rate in three steps between August and November 2003, each time by 100 basis points, to 21.25%. In late 2003 the BNR also intervened in the foreign exchange market to support the domestic currency. In December the BNR announced new administrative measures (credit limits per borrower) to curb credit expansion. The

measures were introduced in February 2004. It remains to be seen what cushioning effect this will have on bank lending. As of yet, the public does not seem to be losing appetite for further loans.[11]

Financial Consolidation Process and Growing Importance of Foreign-Owned Banks

The slow consolidation process of the Romanian banking sector continued in recent years. The total number of credit institutions (including foreign bank branches) declined from 41 at end-2000 to 38 in August 2003. Three have remained in majority state ownership: Banca Comercială Română (BCR, the largest bank, accounting for around 30% of the country's bank assets), the savings bank CEC (the third-largest bank) and Eximbank (Banca de Export-Import a României).[12] As of August 2003, the state held majority stakes in institutions comprising 38% of bank assets of the country (table 2), 31% of nongovernment credit and 42% of nonbank clients' deposits. The state-owned banks' relative strength in the sphere of deposits is due to the prominence of the savings bank Casa de Economii și Consemnatiuni in this field.[13]

29 banks (including eight branches) or 58% of bank assets are owned by foreigners. Foreign-owned credit institutions account for 65% of nongovernment credit and 55% of nonbank clients' deposits. Their strong credit

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[9] IMF (April 2003b, p. 15).

[10] However, growth of euro-denominated loans outstripped growth of leu-denominated loans. For example, in the 12 months to December 2003, euro bank loans expanded by 94% in nominal terms, while leu bank loans increased by 63% and U.S. dollar loans by 14%. Total foreign currency-denominated loans grew by 48% (in nominal terms), Banca Națională a României (2004a, p. 62).

[11] Hunya (2004, p. 73).

[12] For the first two mentioned banks, see table 3.

[13] CEC commands a countrywide network of more than 1,600 branches (The Banker, 2004, p. 60).

position largely goes to previously state-owned banks equipped with large nationwide branch networks taken over by foreigners through which these banks lend to domestic firms and consumers. The increased presence of foreigners has stimulated competition in the sector. Among the most important foreign-owned credit institutions are the Romanian Development Bank (the second-largest bank as measured by assets, owned by Société Générale), Raiffeisen Bank (the fourth-largest credit institution), ABN Amro Bank (ranked fifth), ING Bank Bucharest, Banc Post (see above), Alpha Bank Romania, Citibank Romania, Bank Austria Creditanstalt/HVB Bank, and UniCredit Romania (see also table 3).

Bank Austria Creditanstalt/HVB Bank was founded in 1997. It has focused on corporate and international business and has increasingly served SMEs and retail clients. In 2002 it successfully arranged an issue of bonds of the large power company Thermoelectrica. Bank Austria Creditanstalt/HVB Bank has been able to attract a considerable amount of new deposits, its assets and capital have expanded and profits have developed favorably. The institution intends to open around five branches every year until 2005 and to attain a 5% market share by the same year.[14] The third Austrian bank active in Romania is Österreichische Volksbanken-AG, which established Volksbank Romania in 2000. The latter deals primarily with smaller firms and retail clients. Measures have been taken to improve its cost structure. Volksbank Romania

is reported to post a profit for the first time in 2003. The outlook for the bank seems quite favorable. *Austrian* investors account for the largest share – namely 40% – of total registered statutory foreign capital (which must not be confused with total foreign equity capital) in the Romanian banking sector, followed by Greek (14%), French (11%), Dutch, American and Italian investors.[15] Austrian credit institutions have inter alia benefited from their know-how acquired in many other Central and Eastern European transition economies.

Six banks together accounting for a mere 4% of banking assets are in private Romanian hands. These private Romanian banks thus appear to be sandwiched between the large state-owned banks on the one hand and foreign-owned credit institutions on the other. Despite intensive efforts, the authorities have so far not found a strategic investor for BCR. Recently it was agreed to sell a quarter of BCR's share capital to the EBRD and the IFC (12.5% each); 8% of BCR is reserved for the bank's employees. While EBRD and IFC are expected to stimulate restructuring of the bank, the authorities hope to find a big investor to take over at least 51% of Banca Comercială Română by 2006.[16] Both CEC and Eximbank are still deemed to be in need of substantial restructuring measures; currently a restructuring program is going on in CEC. The authorities intend to privatize CEC and Eximbank in 2005–06.[17]

The collapse of two smaller credit institutions in 2002 – Banca Română de Scont ("Romanian Discount Bank")

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[14] *The Banker (2003b, p. 108).*

[15] *Banca Națională a României (2003a).*

[16] *The HVB banking group has expressed interest in acquiring BCR. – Adevarul Online (2004a).*

[17] *National Bank of Greece S.A. (2003, p. 10).*

Table 3

Romania's Top Ten Commercial Banks (as of September 30, 2003)[1]

	Bank	Total assets	Total share capital of bank	Major owners (share in total registered capital > 5%)	Aggregate share of registered capital owned by foreigners
		ROL billion			%
1	Banca Comercială Română S.A.	164,907	7,925	State (75), EBRD (12.5), IFC (12.5)[2]	25.0[2]
2	Banca Română pentru Dezvoltare − Groupe Société Générale S.A.	73,584	4,181	Société Générale (51.0), State (33.2)	58.4
3	Casa de Economii şi Consemnatiuni S.A.	37,843	1,497	State	0.0
4	Raiffeisen Bank Romania S.A. (former Banca Agricola)	35,003	6,961	Raiffeisen International Beteiligungs A.G. (99.2)	99.2
5	ABN AMRO Bank Romania S.A.	32,538	740	ABN AMRO Bank N.V. Netherlands (99.7)	99.7
6	ING Bank N.V. − Bucharest Branch	25,564	320	ING Bank N.V. Netherlands (100)	100.0
7	Banc Post S.A.	22,323	665	EFG Eurobank Ergasias S.A. (36.3), State (30), Banco Português de Investimento S.A. (17.0), General Electric Capital Corp. (8.8)	62.1
8	Alpha Bank Romania S.A. (former Bucharest Bank)	18,441	1,452	Alpha Romanian Holdings A.E. Greece (53.9), Alpha Bank A.E. Greece (41.5)	100.0
9	Citibank Romania S.A.	17,086	641	Citibank Overseas Investment Corporation (99.6),	100.0
10	Banca Comercială „Ion Tiriac" S.A.	16,347	1,047	Ion Tiriac Group (72.3), of which: Ion Tiriac (28.3), REDRUM T.V. International B.V. (43.4); EBRD (5.7)	83.0

Source: Banca Naţională a României.

[1] According to prudential reports.

[2] As of January 1, 2004.

and Banca de Investiţii şi Dezvoltare ("Investment and Development Bank") – revealed the weakness of their ownership structures and their susceptibility to fraud.[18] Recurrent bank failures and feeble governance practices have contributed to subduing confidence in the system. However, the initiation of bankruptcy proceedings against Banca Columna in March 2003 may have marked the completion of a cleaning-up phase of the sector undertaken by the authorities.[19] Still, increasing competitive pressure may come to threaten the viability of some other small banks, including those left in Romanian private ownership, but possibly also some foreign-owned ones.

The BNR has been striving lately to further improve banking supervision rules and practices. Loan classification and loss provisioning rules were tightened in early 2003. Substandard loans were included in the category of non-performing loans, as is good international practice. This moved Romanian accounting rules nearer to IAS. Today the BNR can be said to possess a solid banking supervision framework that is (largely) compliant with the majority of the Core Principles for Effective Banking Supervision.[20] Due to increasing competition, interest rate spreads have been slightly declining, but they are still high. (In 2002 spreads between deposit and lending rates amounted to approximately 16%, in July and December 2003 they came to 14.5%.) Banks' liquidity is generally satisfactory. Given the economic upswing and the wave of credit expansion, the profitability of Romanian banks has

[18] The Banker (2003c, p. 113).
[19] "Thus, as of that moment, all banks that were insolvent or had negative net worth have been removed from the system." - Banca Naţională a României (2003b, p. 81).
[20] IMF (2003a, p. 18).

steadily risen in recent years, although it slightly declined again in 2002 and early 2003 in the wake of the narrowing of spreads and increased provisions (see table 2). Rising competition is also pushing banks to extend their activities to insurance, leasing and asset management markets.

The capitalization of banks in Romania is quite high. In May 2003, capital adequacy stood at a very good 23%. This is partly the result of the ongoing gradual adjustment of minimum capital requirements to around EUR 10 million. It is also attributable to rising competition, which pushes local banks to attract additional funding by boosting their capital.[21] The share of nonperforming loans in total loans was reported to have fallen to only about 2% at the beginning of 2003. However, this share has recently been revised upward to 11% (June 2003), as a result of the tightening of provisioning rules.[22] Such a level still seems to be manageable for a transition economy. Romania intends to come into full compliance with International Accounting Standards by 2005. As of early 2003, nine banks (including BCR, Romanian Development Bank, BACA-HVB Bank, Citibank Romania) reported their financial statements according to IAS. Of course there is a likelihood that in an economic upswing like the one Romania currently witnesses, doubtful loans pose a lesser problem, only to loom larger once business prospects start to deteriorate.

A most recent incident demonstrates the authorities' proneness to intermittent slippages. In March 2004 the government approached a number of Romanian banks, including foreign-owned ones, to find out whether they would be prepared to grant long-term loans to the country's National Housing Agency and National Investment Company to finance the construction of thousands of new apartments and sports halls. After the credit institutions had shown their reluctance to fund the program, pointing to the likely high risk involved in such an undertaking, the cabinet issued an emergency ordinance ordering CEC to finance the project (coming to ROL 6,500 billion or approximately EUR 185 million). The decree also vested CEC with a special dispensation to ignore single client exposure regulations which would be violated in this case. The government's decision, which appears to be linked to the campaign for the November 2004 general elections, was sharply criticized by independent observers and the EU's representative in Bucharest as being incompatible with Romania's banking laws and EU legislation. Shortly afterwards the government seemed to have backed off and an official stated that the authorities intended to revise the controversial decree.[23]

Despite the rapid growth of the trading volume on the Bucharest Stock Exchange in recent years (about 150% from early 2002 to mid-2003) as well as on the RASDAQ (about 75% over the same period), liquidity remains poor on both exchanges, with a limited number of stocks accounting for the lion's share of the transaction volume. The combined capitalization of both markets came to 11% of GDP in mid-2003, which is about half

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[21]   *Adevarul Online (2004b).*

[22]   *IMF (2003a, p. 5).*

[23]   *Associated Press Newswires (2004), Reuters News (2004).*

that of Central European countries. The fixed-income market is still at an early stage of development and consists mostly of government securities and a small number of municipal bonds. This reflects a lack of secondary market trading.[24]

Key Challenges and Prospects

All in all, financial intermediation in Romania – notwithstanding expansionary tendencies – is still at a comparatively modest level. Provided that framework conditions do further adjust, there remains ample growth potential in the medium and long term, just as the growth and catching-up potential of the entire Romanian economy remains large and promising. As a sign of hope and optimism, in mid-October 2003 Romania successfully concluded its IMF Stand-by Arrangement – the first such program that the country fully carried through. The authorities are reportedly aiming to conclude a new agreement with the Fund soon. On the other hand, in its latest progress report on Romania (of November 2003) the European Commission did not yet certify the country as a "functioning market economy" – indicating that there were still substantial reform needs. Moreover, the European Parliament recently (February 2004) pointed to shortcomings in Romania's judicial system and other structural problems. To give just one illustration of the scope for catching up in the financial sphere: With 22.4 million inhabitants and a territory of approximately the size of former West Germany, Romania is the second-largest EU accession country after Poland.[25] If banking sector assets *per capita* in Romania reached the same level as they presently have in Poland, this would imply a medium-term expansion potential of close to 400%.

Apart from the above-mentioned exposure to a possible marked depreciation of the domestic currency and the inherent credit risk, some of the most pertinent risks/problems for the Romanian financial and banking sector appear to be:
– the danger of a mismatch between increasingly medium-term loans and predominantly short-term deposits;
– insufficient risk analysis and management capacities at banks;
– the weakness, limited efficiency and transparency of capital market development and the modest level of supervision;
– the persisting lag in restructuring the real sector, particularly state-owned enterprises, sluggish privatization, weak corporate governance, loss-prone firms, lack of financial discipline;
– continuing limited contract enforcement capacities and de-facto recoverability of claims, inefficient and partly intransparent insolvency procedures, inadequate creditor protection;
– legal complexity and the generally weak rule of law, which may easily fall victim to government emergency decrees;
– despite some progress still unfavorable overall investment climate, still sprawling bureaucracy, pervasive corruption.[26]

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[24] IMF (2003a, p. 19–20).

[25] As of 1 May 2004 Poland became member of the European Union.

[26] For the last three points see OECD (2002); EBRD (2002, p. 186–187); EBRD (2003, p. 180–181); IMF (April 2003b, p. 17).

The overarching Romanian national goal of joining the EU as soon as possible (now scheduled for 2007) may be seen as a catalyst giving a clear overall direction and reinforcing reform efforts of the authorities.

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ANNEX OF TABLES

Annex of Tables

Cutoff date for data: May 19, 2004.

Conventions used in the tables:
× = For technical reasons no data can be indicated
. . = Data not available at the reporting date

Revisions of data published in earlier volumes are not indicated.
Discrepancies may arise from rounding.

International Environment

Table A1

Exchange Rates

Period average (per 1 EUR)	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
U.S. dollar	0.9240	0.8956	0.9449	1.1309	0.9606	0.8986	0.8983	1.1577
Japanese yen	99.53	108.73	118.06	130.96	102.50	108.03	116.24	130.85
Pound sterling	0.6095	0.6219	0.6288	0.6919	0.6119	0.6235	0.6214	0.6983
Swiss franc	1.5577	1.5104	1.4672	1.5207	1.5852	1.5307	1.4691	1.3383
Czech koruna	35.609	34.051	30.804	31.847	36.036	34.544	31.060	32.140
Hungarian forint	260.05	256.42	242.57	253.51	257.58	261.66	243.19	259.74
Polish zloty	4.0070	3.6689	3.8559	4.3987	4.0727	3.6294	3.6667	4.5245
Slovak koruna	42.603	43.293	42.673	41.485	42.1547	43.418	42.595	41.469
Slovenian tolar	206.6714	218.1159	226.2558	233.8421	203.3470	216.4035	224.0450	235.5186

Source: Thomson Datastream.

Table A2

Key Interest Rates

End of period, %	2000 June 30	Dec. 31	2001 June 30	Dec. 31	2002 June 30	Dec. 31	2003 June 30	Dec. 31
Euro area	4.25	4.75	4.50	3.25	3.25	2.75	2.00	2.00
U.S.A.	6.50	6.50	3.25	1.25	1.25	1.25	1.25	0.75
Japan	0.50	0.50	0.25	0.10	0.10	0.10	0.10	0.10
United Kingdom	6.00	6.00	5.25	4.00	4.00	4.00	3.75	3.75
Switzerland[1]	3.00−4.00	3.00−4.00	2.75−3.75	1.25−2.25	0.75−1.75	0.25−1.25	0.00−0.75	0.00−0.75
Czech Republic	5.25	5.25	5.00	4.75	3.75	2.75	2.25	2.00
Hungary	11.00	11.75	11.25	9.75	9.00	8.50	9.50	12.50
Poland	17.50	19.00	15.50	11.50	8.50	6.75	5.25	5.25
Slovak Republic	8.50	8.00	7.75	7.75	8.25	6.50	6.50	6.00
Slovenia[2]	9.89	11.85	11.16	8.00	8.75	8.25	5.50	6.00

Source: WIIW (The Vienna Institute for International Studies), Thomson Datastream, Bloomberg, national sources.
[1] *SNB target range for three-month LIBOR.*
[2] *Banka Slovenije redefined its key interest rate in February 2003.*

Table A3

Short-Term Interest Rates

Three-month rates, period average, %	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area	4.39	4.26	2.94	2.33	4.88	3.86	3.23	2.14
U.S.A.	6.53	3.78	1.41	1.22	6.69	2.80	1.68	1.15
Japan	0.29	0.16	0.08	0.09	0.45	0.08	0.08	0.09
United Kingdom	6.10	4.97	3.96	3.69	6.06	4.51	3.95	3.70
Switzerland	3.08	2.94	0.69	0.33	3.46	2.56	0.80	0.26

Source: Thomson Datastream.

Table A4

Long-Term Interest Rates

Ten-year rates, period average, %	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area	5.44	5.03	4.92	4.16	5.20	4.98	4.62	4.81
U.S.A.	6.03	5.00	4.61	4.01	5.73	4.88	4.13	4.26
Japan	1.76	1.32	1.27	0.99	1.76	1.36	1.13	1.29
United Kingdom	5.33	5.02	4.91	4.58	5.37	4.96	4.65	4.27
Switzerland	3.93	3.38	3.20	2.66	3.84	3.30	2.88	2.83

Source: WIIW, Thomson Datastream, Bloomberg, national sources.

Table A5

Corporate Bond Spreads

Period average, percentage points	2000 Year	2001	2002	2003	2000 2st half	2001	2002	2003
Euro corporate bond spreads against euro benchmark	1.00	1.17	1.20	0.3544	1.22	1.25	1.41	0.07
U.S. dollar corporate bond spreads against U.S. dollar benchmark	4.26	5.48	5.50	4.5716	4.55	4.99	6.27	3.78

Source: Thomson Datastream.

Table A6

Stock Indices[1]

Period average	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area: EUROSTOXX	423.94	336.29	259.97	231.29	417.32	305.99	220.35	227.32
U.S.A.: S&P 500	1,426.55	1,193.78	995.34	964.85	1,420.64	1,133.37	892.05	1,028.66
Japan: Nikkei 225	17,161.59	12,114.46	10,119.31	9,312.89	15,660.38	10,873.50	9,277.12	10,243.21
Austria: ATX	1,128.08	1,157.84	1,183.94	1,303.80	1,127.10	1,138.04	1,115.35	1,397.95
Czech Republic: PX50	552.10	411.17	437.64	556.98	510.77	373.40	505.29	608.51
Hungary: BUX	8,744.54	6,899.95	7,759.55	8383.61228	8,057.70	6,639.13	7,761.97	8,996.01
Poland: WIG	1,952.05	1,332.36	1,240.32	1,327.91	1,792.76	1,169.02	1,151.24	1,501.21
Slovak Republic: SAX16	82.62	102.34	116.60	164.08	88.25	113.11	118.41	171.34
Slovenia: SBI20	1,720.34	1,888.94	2,846.88	3,373.41	1,695.48	1,989.99	3,216.29	3,523.23

Source: Thomson Datastream, Bloomberg.

[1] EUROSTOXX: December 31, 1986 = 100, S&P 500: December 30, 1964 = 100, Nikkei 225: March 31, 1950 = 100, ATX: January 2, 1991 = 1000, PX50: April 6, 1994 = 100, BUX: January 2, 1991 = 100, WIG: April 16, 1991 = 100, SAX16: September 14, 1993 = 100, SBI20: January 3, 1994 = 100.

Table A7

Gross Domestic Product

Annual change in %, period average	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area	3.5	1.6	0.9	0.4	3.0	1.2	1.1	0.5
U.S.A.	3.8	0.3	2.5	2.8	3.0	−0.2	2.9	4.0
Japan	2.8	0.4	−0.4	2.6	1.5	−1.6	1.4	2.9
Austria	3.4	0.8	1.4	0.9	2.6	0.3	1.4	0.9
Czech Republic	3.3	3.1	2.0	2.9	3.3	2.7	1.6	3.2
Hungary	5.3	3.8	3.5	2.9	5.6	2.4	3.8	3.3
Poland	4.0	1.0	1.3	3.7	2.7	0.5	2.0	4.4
Slovak Republic	2.0	3.8	4.4	4.2	2.2	4.4	4.8	4.5
Slovenia	4.6	2.9	2.9	2.3	4.4	2.7	3.2	2.4

Source: Eurostat, WIIW.

Table A8

Current Account

% of GDP, cumulative	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area	−0.2	0.4	1.2	1.0	−1.0	0.3	1.4	0.9
U.S.A.	−4.1	−3.8	−4.7	−5.3	−4.6	−3.9	−5.0	−4.9
Japan	2.5	2.1	2.9	3.0	2.3	2.2	2.5	3.3
Austria	−2.6	−1.9	0.5	0.7	−3.4	−2.1	−0.8	−1.9
Czech Republic	−5.3	−5.7	−6.0	−6.5	−6.7	−5.7	−7.7	−9.1
Hungary	−8.7	−6.2	−7.1	−8.9	−8.8	−4.2	−7.7	−8.5
Poland	−6.0	−2.9	−2.7	−2.0	−5.0	−1.9	−1.8	−1.3
Slovak Republic	−3.4	−8.4	−8.1	−0.9	−5.2	−8.8	−8.3	−0.5
Slovenia	−2.8	0.1	1.7	0.1	−2.6	0.6	2.0	0.6

Source: Eurostat, OECD, WIIW. Owing to seasonal fluctuations, comparability of semiannual with annual data is limited.

Table A9

Inflation

Annual change in %, period average	2000 Year	2001	2002	2003	2000 2nd half	2001	2002	2003
Euro area	2.1	2.3	2.3	2.1	2.4	2.2	2.2	2.1
U.S.A.	3.4	2.8	1.6	2.3	3.5	2.3	1.9	2.1
Japan	−0.7	−0.6	−0.9	−0.3	−0.6	−0.9	−0.7	−0.3
Austria	2.0	2.3	1.7	1.3	2.1	2.3	1.7	1.2
Czech Republic	3.9	4.5	1.4	−0.1	4.2	4.5	0.2	0.3
Hungary	10.0	9.1	5.2	4.7	10.2	7.9	4.7	5.0
Poland	10.1	5.3	1.9	0.7	10.0	4.1	1.2	1.0
Slovak Republic	12.2	7.2	3.5	8.5	8.8	7.2	3.0	9.2
Slovenia	8.9	8.6	7.5	5.7	9.0	8.0	7.2	5.3

Source: Eurostat, OECD, WIIW.

Financial Intermediaries in Austria

Table A10

Total Assets and Off-Balance-Sheet Operations[1]

End of period, EUR million	2000 June 30	Dec. 31	2001 June 30	Dec. 31	2002 June 30	Dec. 31	2003 June 30	Dec. 31
Total assets	562,059	562,700	567,250	587,741	587,611	573,349	591,867	605,107
thereof: total domestic assets	410,727	404,908	413,701	431,415	426,245	418,141	419,571	430,888
total external asstes	151,332	157,792	153,548	156,326	161,366	155,208	172,296	174,219
Interest rate contracts	653,884	611,150	677,098	946,631	1,022,741	1,144,431	2,204,721	1,853,494
Foreign exchange derivatives	179,366	160,650	164,435	157,512	202,939	240,542	298,475	305,447
Other derivatives	7,225	15,184	5,727	5,737	7,554	3,814	4,304	15,173
Derivatives total	840,474	786,984	847,259	1,109,880	1,233,235	1,388,787	2,507,501	2,174,114

Source: OeNB.
[1] *Data on off-balance-sheet operations refer to nominal values.*

Table A11

Profitability

End of period, EUR million	2000 June 30	2001	2002	2003	2000 Dec. 31	2001	2002	2003
Interest receivable and similar income	13,233	14,245	11,858	10,604	27,508	26,814	23,426	20,732
Interest payable and similar charges	9,937	10,876	8,339	7,107	20,773	19,725	16,345	13,674
Net interest income	3,296	3,369	3,518	3,497	6,735	7,089	7,081	7,058
Income from debt securities and participating interests	813	781	828	812	1,817	1,959	1,771	1,719
Net fee-based income	1,579	1,568	1,514	1,553	3,203	3,062	3,012	3,188
Net profit/loss on financial operations	274	250	197	384	487	521	570	618
Other operating income	608	638	629	591	1,282	1,423	1,284	1,292
Operating income	6,571	6,606	6,685	6,837	13,523	14,054	13,718	13,875
Staff costs	2,190	2,294	2,380	2,437	4,479	4,681	4,781	4,740
Other administrative expenses	1,383	1,512	1,524	1,508	2,930	3,151	3,139	3,108
Other operating charges	404	419	425	386	940	974	851	873
Operating expenses	4,298	4,564	4,686	4,714	9,004	9,476	9,502	9,468
Operating profit/loss	2,272	2,043	2,000	2,124	4,520	4,577	4,216	4,407

Source: OeNB.

Table A12

Expected Annual Profit/Loss

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Expected profit/loss for the year	4,198	4,395	3,848	4,533	4,002	4,177	3,929	4,374
Expected profit/loss on ordinary activities	2,878	2,876	2,794	3,151	2,021	2,065	2,278	2,686
Expected profit/loss for the year after tax	2,206	2,324	2,252	2,688	1,514	1,439	1,777	2,146

Source: OeNB.

Table A13

Claims on Domestic Nonbanks

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Nonfinancial enterprises	121,077	128,104	129,489	131,593	130,519	129,091	128,476	128,846
Households	56,773	59,222	61,243	62,805	64,831	67,115	67,425	69,346
General government	29,122	28,727	28,798	28,275	28,724	28,333	27,501	29,950
Other financial intermediaries	11,099	10,459	11,108	11,893	12,309	12,771	12,908	13,392
Total	218,071	226,512	230,638	234,566	236,383	237,310	236,309	241,534

Source: OeNB.

Table A14

Foreign Currency-Denominated Claims on Domestic Nonbanks

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Nonfinancial enterprises	23,078	23,983	24,775	25,167	25,333	24,833	23,225	23,047
Households	11,803	12,611	13,801	14,555	15,625	16,766	16,761	18,430
Staat	2,120	1,904	1,692	1,362	1,682	1,395	1,567	1,237
General government	1,739	1,114	1,326	1,336	1,342	1,466	1,394	1,412
Total	38,740	39,613	41,594	42,420	43,983	44,459	42,948	44,125

Source: OeNB.

Table A15

Foreign Currency-Denominated Claims on Domestic Non-MFIs

End of period, share in %[1]	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Swiss franc	65.8	60.7	53.2	52.1	51.4	56.8	72.4	81.6
Japanese yen	28.7	33.9	40.7	42.3	42.2	37.7	21.6	12.2
U.S. dollar	4.4	4.2	5.2	5.2	6.0	5.0	5.2	5.0
Other foreign currencies	1.0	1.3	0.9	0.4	0.3	0.4	0.7	1.2

Source: OeNB, ECB.

[1] The indicated figures refer to claims of monetary financial institutions (MFIs, ESA definition) against euro area non-MFIs. Given the differences in the definition of credit institutions according to the Austrian Banking Act and of MFIs according to ESA and differences in the number of borrowers, comparability to "Claims on Domestic Nonbanks" is limited. Figures do not add up to 100.0% for every year due to rounding.

Table A16

Specific Loan Loss Provisions for Claims on Nonbanks

End of period, % of claims	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Specific loan loss provisions	3.1	2.9	3.2	3.1	3.4	3.3	3.5	3.3

Source: OeNB.

Table A17

Market Risk[1]

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Interest rate risk Capital requirement for the position risk of interest rate instruments in the trading book	871.3	853.3	587.8	394.1	427.2	415.3	420.6	470.2
Exchange rate risk ECapital requirement for open foreign exchange positions	108.3	71.4	96.9	64.0	70.3	80.4	81.8	54.9
Equity price risk Capital requirement for the position risk of equities in the trading book	57.3	60.4	43.8	28.5	33.6	20.5	25.4	28.4

Source: OeNB.

[1] The calculation of capital requirements for market risk combines the standardized approach and internal value at risk (VaR) calculations. The latter use previous day's values without taking account of the multiplier. Capital requirements for interest rate instruments and equities are computed by adding up both general and specific position risks.

Table A18

Liquidity Risk

End of period, %	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Liquidity of the first degree: 5% quantile of liquidity ratio[1]	20.3	6.1	12.4	5.9	11.5	6.1	7.1	4.5
Liquidity of the second degree: 5% quantile of liquidity ratio	29.0	26.3	26.4	27.3	27.3	26.1	28.2	25.2

Source: OeNB.

[1] The liquidity ratio relates liquid assets to the corresponding liabilities. Article 25 of the Austrian Banking Act defines a minimum ratio of 2.5% for liquidity of the first degree (cash ratio) and of 20% for liquidity of the second degree (current ratio). The 5% quantile indicates the liquidity level surpassed by 95% of banks on the respective reporting date and is thus an indicator of poor liquidity.

Table A19

Solvency

	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
End of period, EUR million								
Total tier 1 capital (core capital)	24,606	24,652	26,930	27,440	28,368	26,841	28,178	29,704
Total tier 2 capital (supplementary capital)	11,827	12,659	13,512	13,492	14,159	13,486	14,171	14,941
Tier 3 capital[1]	×	1,575	1,251	2,413	2,197	2,324	771	828
Eligible capital as a percentage of risk-weighted assets								
Capital adequacy ratio[2]	12.9	13.3	14.0	13.7	14.2	13.3	13.9	14.9

Source: OeNB.

[1] Because of amendments in the applicable law, data are available only as of 2000.

[2] In this context, the capital adequacy ratio refers to the capital eligible as credit risk cover under the Austrian Banking Act (i.e. tier 1 capital plus tier 2 capital minus deduction items) as a percentage of the assessment base. As tier 3 capital is subordinated capital that may only be allocated against market risk, it was not included here so as to produce a conservative capital adequacy assessment.

Table A20

Assets Held by Austrian Insurance Companies[1]

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Cash, overnight deposits	464	719	531	757	764	681	1,246	860
Other deposits at Austrian banks	308	332	483	1,425	678	947	2,371	1,243
Domestic debt securities	8,647	8,245	7,840	7,712	7,600	7,736	8,488	8,915
Equity securities and other domestic securities	11,206	11,847	12,599	13,127	14,616	15,043	14,648	15,168
Lending	11,405	11,147	10,455	8,769	8,518	8,055	7,441	7,232
Domestic equity interests	2,032	2,257	2,293	2,511	2,784	3,308	3,550	3,738
Real estate	3,404	3,428	3,443	3,494	3,804	3,553	3,526	3,578
External assets	10,669	11,248	13,074	14,397	14,959	15,709	15,597	16,813
Custody account claims on reinsurers	. .	1,805	. .	1,854	. .	2,042	. .	. .
Other assets	3,058	3,105	3,085	3,426	3,310	3,329	3,734	3,416
Total assets	. .	54,134	. .	57,471	. .	60,403	. .	. .

Source: OeNB.
[1] Semiannual data exclusive of reinsurance transactions.

Table A21

Assets in Austrian Mutual Funds

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Domestic securities	34,787	34,908	35,154	36,068	36,471	35,952	34,653	34,327
thereof: Federal Treasury bills and notes	252	424	25	27	28	28	. .	. .
debt securities	25,843	24,302	23,828	23,235	22,975	22,519	20,743	19,436
equity securities	8,692	10,182	11,301	12,806	13,468	13,405	13,910	14,891
Foreign securities	49,621	51,210	56,697	57,324	60,701	60,712	66,706	69,435
thereof: debt securities	28,676	30,336	32,944	34,717	40,498	43,200	48,531	48,952
equity securities	20,945	20,874	23,753	22,607	20,203	17,513	18,175	20,482
Other assets	6,055	5,856	4,936	5,341	5,018	6,047	5,774	7,252
Total assets	90,462	91,973	96,787	98,733	102,190	102,712	107,133	111,017
thereof: foreign currency	22,402	22,415	24,789	24,346	24,157	22,455	22,376	22,177

Source: OeNB.

Table A22

Assets Held by Austrian Pension Funds

End of period, EUR million	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
Domestic securities	6,879	7,070	7,171	7,245	7,128	7,200	7,744	8,280
thereof: Federal Treasury bills and notes	—	—	—	—	—	—	—	—
debt securities	26	31	35	63	67	57	56	48
mutual fund shares	6,846	7,030	7,127	7,163	7,032	7,125	7,641	8,168
other securities	7	9	9	19	30	18	47	64
Foreign securities	550	523	586	534	401	353	425	405
thereof: debt securities	40	41	40	49	44	44	47	44
mutual fund shares	505	478	526	451	315	279	350	331
other securities	4	4	20	34	43	30	29	31
Deposits	43	95	92	164	118	171	164	224
Lending	69	71	69	39	32	42	67	66
Other assets	95	89	68	67	121	110	161	137
Total assets	7,636	7,848	7,986	8,049	7,800	7,876	8,562	9,111
thereof: foreign currency	404	302	339	303	188	195	233	212

Source: OeNB.

The Real Economy and Financial Markets in Austria

Table A23

Financial Investment of Households

Transactions, EUR million	2000 Year	2001	2002	2003[1]	2000 2nd half	2001	2002	2003[1]
Currency and deposits[2]	2,328	4,017	7,072	8,153	1,777	1,908	4,263	3,503
Securities other than shares[3]	1,829	−327	1,115	1,025	890	−232	45	1,337
Shares other than mutual fund shares	1,672	1,047	587	895	944	904	274	−27
Mutual fund shares	4,000	3,298	595	826	2,257	951	714	228
Insurance technical reserves	4,186	3,512	3,118	3,064	2,288	1,527	1,511	758
Total financial assets	14,016	11,547	12,487	13,963	8,156	5,058	6,807	5,800

Source: OeNB.
[1] Preliminary data.
[2] Including loans and other accounts receivable.
[3] Including financial derivatives.

Table A24

Household Income, Savings and Credit Demand

	2000 Year	2001	2002	2003[1]
Year-end, EUR billion				
Net disposable income[1]	127.67	130.88	134.68	136.57
Savings	10.71	9.81	11.10	11.61
in %				
Saving ratio[2]	8.4	7.5	8.2	8.5
Year-end, EUR billion				
Loans to Households	59.22	62.81	67.12	69.35

Source: Statistics Austria; national accounts broken down by sectors; data last revised December 2002.
[1] WIFO forecast of April 2004.
[2] Saving ratio: savings / (disposable income + increase in accrued occupational pension entitlements).

Table A25

Financing of Nonfinancial Corporations

Transactions, EUR million	2000 Year	2001	2002	2003[1]	2000 2nd half	2001	2002	2003[1]
Securities (other than shares)	2.116	600	−235	4.249	×	4.213	−217	4.213
Loans[2]	18.033	11.339	6.866	5.004	×	2.807	3.598	2.807
Shares and other equity	4.361	8.961	3.072	6.804	×	3.308	1.259	3.308
Other accounts payable	−2.544	−183	268	2.164	×	2.522	300	2.522
Total debt	21.966	20.717	9.971	18.221	×	12.850	4.941	12.850

Source: OeNB.
[1] Preliminary data.
[2] Excluding trade credit.

Table A26

Insolvency Indicators

	2000		2001		2002		2003	
	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31
End of period, EUR million Default liabilities	1,185	2,674	2,070	3,503	1,652	3,422	1,258	2440
Number of defaults	1,310	2,567	1,458	2,939	1,423	2,864	1,415	2957

Source: Kreditschutzverband von 1870.

Table A27

Selected Financial Ratios of the Manufacturing Sector

Median, %	2000 Year	2001	2002
Self-financing and investment ratios			
Cash flow, as a percentage of turnover	7,66	7,05	6,74
Cash flow, as a percentage of investment	184,25	166,67	166,67
Reinvestment ratio[1]	67,42	75,42	84,21
Financial structure ratios			
Equity ratio	10,44	11,14	17,39
Risk-weighted capital ratio	15,21	16,07	23,66
Bank liability ratio	46,96	47,56	39,99
Government debt ratio	10,65	9,68	9,11

Source: OeNB.
[1] Investment x 100 / credit write-offs.

Notes

Abbreviations

ACH	automated clearing house		GNP	gross national product
APSS	Austrian Payment System Services GmbH		GSA	GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination GmbH (Austrian cash services company)
ARTIS	Austrian Real Time Interbank Settlement (the Austrian RTGS system)			
A-SIT	Secure Information Technology Center – Austria		HICP	Harmonized Index of Consumer Prices
			IBAN	International Bank Account Number
ASVG	Allgemeines Sozialversicherungsgesetz – General Social Security Act		IBRD	International Bank for Reconstruction and Development
A-Trust	A-Trust Gesellschaft für Sicherheitssysteme im elektronischen Datenverkehr GmbH		IDB	Inter-American Development Bank
			IFES	Institut für empirische Sozialforschung GesmbH (Institute for Empirical Social Research, Vienna)
ATM	automated teller machine			
ATX	Austrian Traded Index		ifo	ifo Institute for Economic Research, Munich
BCBS	Basel Committee on Banking Supervision (BIS)		IGC	Intergovernmental Conference (EU)
BIC	Bank Identifier Code		IHS	Institut für Höhere Studien und Wissenschaftliche Forschung – Institute for Advanced Studies, Vienna
BIS	Bank for International Settlements			
BOP	balance of payments		IIF	Institute of International Finance
BSC	Banking Supervision Committee (ESCB)		IIP	international investment position
CACs	collective action clauses		IMF	International Monetary Fund
CEBS	Committee of European Banking Supervisors (EU)		IRB	internal ratings-based
CEE	Central and Eastern Europe		ISO	International Organization for Standardization
CEECs	Central and Eastern European countries		IWI	Industriewissenschaftliches Institut – Austrian Institute for Industrial Research
CESR	Committee of European Securities Regulators			
CIS	Commonwealth of Independent States		IT	information technology
CPI	consumer price index		JVI	Joint Vienna Institute
EBA	Euro Banking Association		LIBOR	London Interbank Offered Rate
EBRD	European Bank for Reconstruction and Development		M3	broad monetary aggregate M3
			MFI	monetary financial institution
EC	European Community		MRO	main refinancing operation
ECB	European Central Bank		MÖAG	Münze Österreich AG – Austrian Mint
Ecofin	Council of Economic and Finance Ministers (EU)		MoU	memorandum of understanding
EEA	European Economic Area		NCB	national central bank
EFC	Economic and Financial Committee (EU)		ÖBB	Österreichische Bundesbahnen – Austrian Federal Railways
EIB	European Investment Bank			
EMS	European Monetary System		OeBS	Oesterreichische Banknoten- und Sicherheitsdruck GmbH – Austrian Banknote and Security Printing Works
EMU	Economic and Monetary Union			
EONIA	Euro OverNight Index Average			
ERM II	Exchange Rate Mechanism II (EU)		OECD	Organisation for Economic Co-operation and Development
ERP	European Recovery Program			
ESA	European System of Accounts		OeKB	Oesterreichische Kontrollbank (Austria's main financial and information service provider for the export industry and the capital market)
ESAF	Enhanced Structural Adjustment Facility (IMF)			
ESCB	European System of Central Banks			
ESRI	Economic and Social Research Institute		OeNB	Oesterreichische Nationalbank (Austria's central bank)
EU	European Union			
EURIBOR	Euro Interbank Offered Rate		OPEC	Organization of the Petroleum Exporting Countries
Eurostat	Statistical Office of the European Communities		ORF	Österreichischer Rundfunk – Austrian Broadcasting Corporation
FATF	Financial Action Task Force on Money Laundering			
Fed	Federal Reserve System		ÖBFA	Austrian Federal Financing Agency
FFF	Forschungsförderungsfonds für die Gewerbliche Wirtschaft – Austrian Industrial Research Promotion Fund		ÖNACE	Austrian Statistical Classification of Economic Activities
			PE-ACH	pan-European automated clearing house
FMA	Financial Market Authority (for Austria)		PISA	Programme for International Student Assessment (OECD)
FOMC	Federal Open Market Committee (U.S.A.)			
FSAP	Financial Sector Assessment Program (IMF)		POS	point of sale
FWF	Fonds zur Förderung der wirtschaftlichen Forschung – Austrian Science Fund		PRGF	Poverty Reduction and Growth Facility (IMF)
			RTGS	Real-Time Gross Settlement
GAB	General Arrangements to Borrow		SDR	Special Drawing Right (IMF)
GATS	General Agreement on Trade in Services		SDRM	Sovereign Debt Restructuring Mechanism (IMF)
GDP	gross domestic product		SEPA	Single Euro Payments Area

SPF	Survey of Professional Forecasters	UNO	United Nations Organization
STEP2	Straight-Through Euro Processing system offered by the Euro Banking Association	VaR	Value at Risk
		WBI	Wiener Börse Index
STP	straight-through processing	WEF	World Economic Forum
STUZZA	Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr G.m.b.H. – Austrian Research Association for Payment Cooperation	WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
S.W.I.F.T.	Society for Worldwide Interbank Financial Telecommunication	WIIW	Wiener Institut für internationale Wirtschafts-vergleiche – The Vienna Institute for International Economic Studies
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer	WKO	Wirtschaftskammer Österreich – Austrian Federal Economic Chamber
Treaty	refers to the Treaty establishing the European Community	WTO	World Trade Organization
UNCTAD	United Nations Conference on Trade and Development		

Legend

− = The numerical value is zero
. . = Data not available at the reporting date
× = For technical reasons no data can be indicated
0 = A quantity which is smaller than half of the unit indicated
∅ = Mean value
_ = New series

Note: Apparent arithmetical discrepancies in the tables are due to rounding.

Irrevocable euro conversion rate: EUR 1 = ATS 13.7603.

List of Special Topics
Published in the Financial Stability Report Series

http://www2.oenb.at/english/engl_p.htm

Periodical Publications
of the Oesterreichische Nationalbank

Focus on Statistics   monthly

The monthly statistical bulletin, published in German as *Statistisches Monatsheft,* comprises approximately 200 tables covering macroeconomic, financial and monetary indicators as well as explanatory notes. An English version called *Focus on Statistics* is published on the Internet only (www.oenb.at). As from September 2004, the monthly statistical bulletin will be replaced by the quarterly publication *Statistiken – Daten und Analysen.*

http://www2.oenb.at/stat-monatsheft/englisch/start_p.htm

Statistiken – Daten und Analysen   quarterly

This publication contains reports and analyses about Austrian financial institutions as well as about macroeconomic indicators related to financial flows and stocks based primarily on OeNB statistics. The contributions are in German, with English-language executive summaries of the reports. The analyses are also summarized in English. Tables are available in English on the OeNB's website. This publication is scheduled to replace the monthly statistical bulletin, published in German as *Statistisches Monatsheft,* as from September 2004.

Monetary Policy & the Economy   quarterly

This quarterly publication, issued both in German and English, is dedicated to analyses of cyclical developments, medium-term macroeconomic forecasts, studies on central banking and economic policy topics, research findings and information on macroeconomic workshops and conferences organized by the OeNB.

http://www2.oenb.at/english/engl_p.htm

Financial Stability Report   semiannual

The *Financial Stability Report,* issued both in German and English, contains two parts: the first part reports on international developments relating fo financial stability and on the financial market in Austria (e.g. institutions, stock market, bond market). The second part deals with special financial stability issues.

http://www2.oenb.at/english/engl_p.htm

Focus on Transition   semiannual

The *Focus on Transition* contains CEEC-related economic analyses and recent data as well as descriptions of CEEC-related events hosted by the OeNB.

http://www2.oenb.at/english/engl_p.htm

Annual Report   annual

The *Annual Report* of the OeNB provides a broad review of Austrian monetary policy, economic conditions, new developments on the financial markets in general and the financial market supervision in particular, the changing responsibilities of the OeNB and the role of the OeNB as an international partner in cooperation and dialogue. It also contains the financial statements of the OeNB.

http://www2.oenb.at/english/engl_p.htm

Economics Conference (Conference Proceedings)   annual

The *Economics Conference* hosted by the OeNB represents an important international platform for exchanging views on monetary and economic policy as well as financial market issues. It convenes central bank representatives, economic policy decision makers, financial market players, academics and researchers. The conference proceedings comprise all papers, most of them in English.

http://www2.oenb.at/rel/e_p2tagu.htm

East-West Conference Proceedings   annual

This series, published by Edward Elgar, reflects presentations made at an annual OeNB conference on topics that are related to Central, Eastern and Southeastern Europe and the ongoing EU enlargement process and that are relevant from a central banker's view.

http://www2.oenb.at/rel/e_p2tagu.htm

The Austrian Financial Markets   annual

The publication provides easy access to continuously updated information on the Austrian capital markets to the international investment community. The brochure is jointly edited by the OeNB and the Oesterreichische Kontrollbank AG (OeKB).

http://www2.oenb.at/english/engl_p.htm

Workshops – Proceedings of OeNB Workshops   recurrent

The Working Paper series of the OeNB is designed to disseminate and provide a platform for discussion of work of OeNB economists or outside contributors on topics which are of special interest to the OeNB. To ensure the high quality of their content, the contributions are subjected to an international refereeing process. The opinions are strictly those of the authors and in no way commit the OeNB.

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Working Papers   recurrent

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http://www2.oenb.at/english/engl_p.htm

HVW-Newsletter · quarterly

The English-language *Newsletter* is only published on the Internet and informs an international readership about selected findings, research topics and activities of the Economic Analysis and Research Section of the OeNB. This publication addresses colleagues from other central banks or international institutions, economic policy researchers, decision makers and anyone with an interest in macroeconomics. Furthermore, the Newsletter offers information on publications, studies or working papers as well as events (conferences, lectures and workshops).

http://www2.oenb.at/content/Newsletter--1150/index.xml.frame

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