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Difficult Environment for Austria's Financial System

Financial Turmoil Does Not Spare Growth Prospects

In the course of 2008, sustained financial turmoil worldwide led to a downward revision of the economic outlook for both industrialized countries and emerging market economies (EMEs).

Also the growth outlook for the economies of Central, Eastern and Southeastern Europe (CESEE) has deteriorated, although projections mostly continue to clearly exceed those for the euro area. In some countries, however, the overheating of the economy until mid-2008 meant that major external imbalances persisted, or even increased. These imbalances and, in some countries, also the relatively large share of domestic foreign currency loans have contributed to a further increase in both interest rate and exchange rate risks, which have already partly materialized. In addition, the risk premiums on government bonds show significant increases for these countries whereas other Central European countries were hit by these developments to a lesser extent.

As a result of the turbulence in financial markets, a number of countries including Austria have put together packages to strengthen both the liquidity and capital base of their banking sectors. In many countries, moreover, the guarantee on savings was increased. Central banks worldwide have also reacted to the very tight liquidity situation in the money markets. Risk indicators in the equity, bond and interbank markets have remained at a high level, however.

Financing Conditions Deteriorate, Equity Financing Dries Up

Having passed the economic peak in 2007, the Austrian economy's growth outlook worsened again in the course of the reporting year. While Austrian enterprises' profit situation in the first half of 2008 remained healthy, the initial impact of events in the financial markets was already reflected in the half-yearly data for companies' external financing. For instance, financing via quoted shares almost dried up, and growth in bond-based financing slowed from a high level. Although financing conditions deteriorated, credit growth continued to remain buoyant until August 2008. In addition to a further negative impact on enterprises' external financing potential, the marked deterioration in the capital market environment and in growth prospects in the second half of 2008 will, however, lead to a reduction in their financing potential via earnings.

Furthermore, the risk position of Austrian households was shaped by events in the world financial markets. These events left their mark especially in the form of valuation losses on capital market products, which are particularly relevant to funded pension provision and foreign currency loans. In view of unusually high volatilities in the stock markets, the first half of 2008 saw a shift in financial assets from capital market instruments – in particular, mutual fund shares – to deposits. Just as in the corporate sector, events in fall 2008 can be expected to produce a further reinforcement of this effect. In addition, considerable exchange rate risks still exist on the financing front. Both the increased volatility of the Swiss franc against the euro and the valuation losses on repayment vehicle products have led to the materialization of the risk potential of foreign currency loans. The role foreign currency loans still play in Austria (and also in some CESEE

countries) is an additional source of risk.

Indirect Effects of Financial Turmoil Also Hit Austrian Banks

Whereas the Austrian financial sector was relatively mildly hit by the direct effects of the turmoil stemming from the U.S. subprime market, it cannot escape the impact of the international financial crisis. Although Austria's banking sector continues to boast a healthy profit situation in historical terms, its profits are down for the first time after years of growth. The half-yearly results showed that the decline was primarily attributable to negative trading income and some sharp falls in fee income – a key growth driver to date.

Especially thanks to still very healthy CESEE business in the first half of 2008, Austrian banks avoided the more noticeable deterioration in profitability and efficiency suffered by international banks. In view of still significant external imbalances in some countries, however, the further increase in the importance of CESEE business represents also a risk for the future profitability of banks active in this region.

Owing to the perceptible worsening of the economic environment since mid-2008, which is not yet reflected in the data available, trading activities and fee-based business can be expected to suffer a further blow, while loan loss provisions will rise. Since the latter are at historical lows in both Austria and CESEE, a longer-lasting decline in the banking sector's profitability should be assumed.

Unlike many international banks, however, Austrian credit institutions have been in a position to cushion the pile of blows so far with their current earnings. Austrian banks also benefit from their business model as retail banks. The steep growth in deposits is strengthening Austrian banks' liquidity positions, mirroring depositors' confidence in their banks' risk-bearing capacity.

The Austrian insurance sector was also hit by extraordinarily high volatility in international capital markets. Furthermore, demand for Austrian mutual funds has cooled significantly.

Financial Crisis Increases Risk of Recession

Industrialized Countries: Government Measures for Containing the Financial Crisis and its Repercussions on the Real Economy

Dismal Growth Outlook Owing to Financial Crisis

In *industrialized countries*, economic growth in recent quarters slowed on the back of higher commodity prices and the impact of the U.S. subprime crisis. At the same time, inflation in many countries rose primarily because of an increase in commodity prices to historical highs. The price of crude oil (Brent) was very volatile: from April to mid-July 2008, it rose from around USD 100 to as much as USD 145. By mid-November, however, crude oil prices fell to about USD 50 as the outlook for all industrialized countries had worsened. In its November outlook for all industrialized countries for the second half of 2008 and for 2009, the IMF expects GDP to decline by 0.3%, owing, in particular, to the deterioration in financing conditions induced by the financial crisis.

Global financial turmoil stemming from the U.S.A. since summer 2007 escalated seriously from September 2008 onwards. In the U.S.A., the government took over Freddie Mac and Fannie Mae, two of the country's leading mortgage banks, before Lehman Brothers, the fourth-largest U.S. investment bank, filed for bankruptcy, on September 15. As a result of this bank failure, American International Group (AIG), the largest U.S. insurance company, was saved from collapse only by government intervention, and the U.S. financial sector underwent extensive restructuring via (partly government-assisted) corporate takeovers. Lehman's bankruptcy also triggered the withdrawal of high volumes from money market funds – an important source of funds for rolling-over commercial papers that are used to finance major corporations' working capital – and induced a massive loss of confidence between banks. As a result, trading in money markets partially dried up. Central banks took coordinated action to make available additional liquidity – especially, USD liquidity. On September 19, 2008, the U.S. Treasury announced a proposal for a comprehensive program to stabilize the country's financial sector. However, this package was approved only two weeks later together with further tax cuts and an increase in deposit guarantees. In Europe too, individual financial institutions where refinancing difficulties had emerged were provided government support or were nationalized. Starting from end-September, a number of initiatives designed to restore confidence between banks as well as between banks and their customers were launched in the EU, first at national levels and subsequently also as part of coordinated action at EU level. These measures consisted, in particular, in government guarantees, the provision of government funds for potential bank capital increases and a rise in deposit guarantees (to a minimum of EUR 50,000 and up to an unlimited amount). In a concerted action on October 8, 2008, the U.S. Federal Reserve, the ECB, the Bank of England, the Bank of Canada as well as both the Swedish and Swiss central banks announced a cut of 50 basis points in their key interest rates. This measure was taken on account of there being downside risks to the economy, which had increased as result of the financial crisis, and – in connection with this – significantly reduced upside risks to price stability. This assessment was based primarily on the IMF's revised projections released in October 2008.

Table 1

IMF Outlook: Industrialized Countries

	GDP (real growth)							Consumer price inflation					Current account		
	Oct. 08	Apr. 08		Oct. 08		Nov. 08		Oct. 08	Apr. 08		Oct. 08		Oct. 08		
	2007	2008[1]	2009[1]	2008[1]	2009[1]	2008[1]	2009[1]	2007	2008[1]	2009[1]	2008[1]	2009[1]	2007	2008[1]	2009[1]
	%							%					% of GDP		
Industrialized countries	2.6	1.3	1.3	1.5	0.5	1.4	−0.3	2.2	2.6	2.0	3.6	2.0	−0.9	−1.0	−0.6
U.S.A.	2.0	0.5	0.6	1.6	0.1	1.4	−0.7	2.9	3.0	2.0	4.2	1.8	−5.3	−4.6	−3.3
Euro area	2.6	1.4	1.2	1.3	0.2	1.2	−0.5	2.1	2.8	1.9	3.5	1.9	0.2	−0.5	−0.4
Germany	2.5	1.4	1.0	1.8	0.0	1.7	−0.8	2.3	2.5	1.6	2.9	1.4	7.6	7.3	6.8
France	2.2	1.4	1.2	0.8	0.2	0.8	−0.5	1.6	2.5	1.7	3.4	1.6	−1.2	−2.8	−2.7
Italy	1.5	0.3	0.3	−0.1	−0.2	−0.2	−0.6	2.0	2.5	1.9	3.4	1.9	−2.5	−2.8	−2.4
United Kingdom	3.0	1.6	1.6	1.0	−0.1	0.8	−1.3	2.3	2.5	2.1	3.8	2.9	−3.8	−3.6	−3.4
Japan	2.1	1.4	1.5	0.7	0.5	0.5	−0.2	0.0	0.6	1.3	1.6	0.9	4.8	4.0	3.7

Source: IMF (World Economic Outlook) April 2008 and October 2008; IMF (World Economic Outlook Update) November 2008.

[1] Forecast.

In the *U.S.A.*, the preliminary annualized quarterly growth of (seasonally adjusted) real GDP was negative in the third quarter of 2008 (–0.3%), down from a clearly positive +2.8% a quarter earlier. Year on year, growth dropped to 0.8% (after 2.1% in the second quarter of 2008). The positive contributions of net exports and the general government to quarterly growth did not suffice to offset the slump in private consumption and the continuing decline in private investment. The labor market situation has deteriorated in recent months (joblessness grew, employment declined). The correction in the U.S. real estate market continued with house prices falling nationwide and a still high and expanding inventory of unsold houses. In its November outlook, the IMF expected the GDP to shrink in 2009 (–0.7%). In September 2008, core inflation was 2.5 % year on year. By contrast, the consumer price index (CPI) rose by 4.9 % (August 2008: +5.4 %). The IMF projects a drop in inflation to 1.8 % in 2009.

In the *euro area*, seasonally adjusted real GDP in the second quarter of 2008 shrank by 0.2 % on a (non-annualized) quarterly basis. Year on year, GDP growth fell to 1.4 % (first quarter of 2008: 2.1 %). A growth correction had been expected following dynamic growth induced by special factors in the first quarter of 2008 (+0.7 % on a quarterly basis). In *Germany, France* and *Italy*, GDP fell in the second quarter of 2008, compared with the previous quarter. The IMF's November outlook expects a 0.5% to 0.8% contraction of GDP for the euro area as a whole and for these three economies, which are the largest in the euro area. HICP inflation peaked in summer 2008, reaching 4% in both June and July 2008 (year on year), and dropped to 3.6% year on year in September 2008. The IMF projects a further drop in inflation to 1.9 % for 2009 as a whole.

In *Japan*, real GDP in the second quarter of 2008 fell by 0.7 % on a quarterly basis. In its November outlook, the IMF expected GDP to stagnate in 2009 (–0.2 %). Inflation was 2.1% in September, breaching the upper limit of the Bank of Japan's definition of price stability. The decline in commodity

prices should dampen inflation, however.

Liquidity Constraints, Rising Risk Premiums and High Volatility in the Financial Markets

In the *money markets*, there were only minor interest rate changes prior to the intensification of the financial crisis in September 2008. On April 30, 2008, the U.S. Fed's Open Market Committee, decided to cut key interest rates by 25 basis points to 2% in order to counter any risks to the economy. In the euro area, the Governing Council of the ECB, on July 3, 2008, decided to raise the key interest rate by 25 basis points to 4.25% on account of increased upside risks to price stability and the absence of significant lending restrictions. However, the strains existing in the interbank money markets since August 2007 started to intensify in mid-September 2008 as the bankruptcy of Lehman Brothers gave rise to an enhanced perception of risk and an increased preference for liquidity on the part of financial institutions. Interbank dealings in the money market were partly limited to overnight business only. In addition to their coordinated cut in interest rates on October 8, 2008, central banks also cooperated constantly in their efforts to replace the money market temporarily by providing liquidity to one another (via foreign exchange swaps) as well as to banks (via auctions). The Fed and the ECB Governing Council cut their respective key interest rates by another 50 basis points as of October, 29, and November, 12, 2008, to 1% and 3.25% respectively. Owing to the very tight conditions in the interbank money markets, the three-month EURIBOR had climbed from 5.0% at end-August to 5.3% at end-September 2008 while the U.S. dollar three-month LIBOR had increased from 2.8% to 4.1%. After the interest rate cuts and the additional liquidity-providing measures, the three-month EURIBOR dropped to 4.3% and the U.S. dollar three-month LIBOR to 2.2% by mid-November.

In euro area and U.S. *long-term government bond markets,* yields widened from April to June 2008 (by 0.5 percentage points to 4.8% and by 0.4 percentage points to 4.1% respectively), as investors' risk aversion decreased slightly and concerns about inflation spiraled with rising oil and commodity prices. At the same time, economic prospects were considered to be less downbeat and projected key interest rates were revised upward. From July and June, respectively, to mid-November 2008, in the wake of the financial crisis, yields decreased to the level seen in April, as the macroeconomic outlook worsened and investors preferred reliable government bonds. Break-even inflation rates derived from inflation-indexed bonds rose until July 2008 on the back of growing inflation expectations and increasing inflation risk premiums in the euro area and then dropped owing to the ECB's key interest rate hike, lower oil prices and, last but not least, to the worsening financial crisis.

As the financial crisis escalated, *risk premiums on corporate bonds* for borrowers with the best credit rating (AAA) and for issuers with poorer credit ratings (BBB) climbed steeply from September onwards on the back of increased risk aversion, a greater preference for liquidity and heightened concerns about the economy, reaching new historical highs after only a gradual rise had been evident previously. In the euro area and the U.S.A., BBB risk spreads increased by some 310 to 600 basis points and by 330 to 660 basis points respectively between April and mid-

November 2008. AAA risk spreads, by contrast, rose by 60 basis points in the euro area between April and October and by 180 basis points in the U.S.A.; by mid-November, decreases by 20 to 90 basis points and by 30 to 310 basis points were recorded.

In euro area and U.S. *stock markets,* the recovery that commenced in mid-March 2008 came to a halt in May, and stock prices continued to fall in the third quarter of 2008. This development was primarily due to uncertainty about future financial and economic developments and is attributable to slowing corporate profit momentum. Both in the euro area and the U.S.A., the overall market index was driven downward by falling prices of commodity- and energy-related stocks. Since bank shares fared worse, the stock index dropped more sharply in the euro area than in the U.S.A. From end-September to mid-November 2008, both regions saw an even steeper fall in stock prices than in the third quarter of 2008. Especially financial shares slumped disproportionately owing to three factors: first, increased doubt about the profitability, or even solvency, of (U.S.) financial institutions, second, short selling[1] and, third, the liquidity needs of mutual funds from which risk-averse investors have increasingly withdrawn money. Many countries took regulatory measures to limit short selling. A dramatic increase in implicit volatilities between end-August and mid-November also reflected higher uncertainty in the stock markets.

In *foreign exchange markets,* the USD/EUR exchange rate, on July 15, 2008, reached a new high of USD/EUR 1.5990. In the weeks that followed, the exchange rate tumbled sharply on the back of gloomier growth prospects in the euro area. In addition, the Japanese yen and the Swiss franc firmed against the euro during this period, albeit to a smaller extent. With the escalation of the financial crisis in mid-September 2008, volatility in the foreign exchange markets shot up, and the USD/EUR exchange rate responded to the bad news by fluctuating sharply, with the U.S. dollar appreciating overall – which may be related to high levels of investment in short-term U.S. government papers. The Swiss franc continued its uptrend, which may be attributable to its role as both a "safe haven" currency and one for financing carry trades. The Japanese yen came under appreciation pressure in the wake of the financial turmoil. In mid-November 2008, the exchange rate of the euro against the U.S. dollar and the Japanese yen was 22% and 29% respectively below the highs of July 2008; against the Swiss franc, the euro traded 9% below the rate of July 2008.

Emerging Economies: Slowing Economic Momentum; Net Capital Inflows to the Private Sector Declining after Record Level in 2007

Buoyant, Albeit Flagging, Economic Momentum with Decreasing Inflation Risks

In its November outlook the IMF expects real GDP growth for the emerging market economies (EMEs) and the developing countries (DCs) as a whole to slow to 6.7% in 2008 and to 5.1% in 2009.

Growth in *Asia* and the *Commonwealth of Independent States (CIS)* is likely to be the strongest worldwide in 2008 (as it has consistently been since 2003).

[1] *Selling stocks short is the selling of borrowed stocks that must be repurchased at a later date and then returned to their owner.*

Table 2

IMF Outlook: Emerging Market Economies and Developing Countries

	GDP (real change)						Inflation			Current account		
	Nov. 08	Apr. 08	Oct. 08		Nov. 08		Oct. 08			Oct. 08		
	2007	2008[1]	2008[1]	2009[1]	2008[1]	2009[1]	2007	2008[1]	2009[1]	2007	2008[1]	2009[1]
	%						%			% of GDP		
All EMEs & DCs	**8.0**	**6.7**	**6.9**	**6.1**	**6.7**	**5.1**	**6.4**	**9.4**	**7.8**	**4.1**	**4.1**	**2.9**
CESEE[2]	**5.7**	**4.4**	**4.5**	**3.4**	**4.2**	**2.5**	**5.7**	**7.8**	**5.7**	**−6.6**	**−7.1**	**−7.2**
Czech Republic	6.6	4.2	4.0	3.4	..	..	2.8	6.7	3.4	−1.8	−2.2	−2.5
Hungary	1.3	1.8	1.9	2.3	..	..	7.9	6.3	4.1	−5.0	−5.5	−6.1
Poland	6.6	4.9	5.2	3.8	..	..	2.5	4.0	3.3	−3.8	−4.7	−5.7
Slovakia	10.4	6.6	7.4	5.6	..	..	1.9	3.9	3.6	−5.4	−5.1	−4.7
Romania	6.0	5.4	8.6	4.8	..	..	4.8	8.2	6.6	−14.8	−13.8	−13.3
Croatia	5.6	4.3	3.8	3.7	..	..	2.9	7.0	4.9	−8.6	−10.1	−10.2
CIS	**8.6**	**7.0**	**7.2**	**5.7**	**6.9**	**3.2**	**9.7**	**15.6**	**12.6**	**4.4**	**5.5**	**3.0**
Russia	8.1	6.8	7.0	5.5	6.8	3.5	9.0	14.0	12.0	5.9	6.5	3.4
Ukraine	7.6	5.6	6.4	2.5	..	..	12.8	25.3	18.8	−3.7	−7.2	−9.2
Middle East	**6.0**	**6.1**	**6.4**	**5.9**	**6.1**	**5.3**	**10.6**	**15.8**	**14.4**	**18.4**	**22.9**	**17.1**
Egypt	7.1	7.0	7.2	6.0	..	..	11.0	11.7	16.1	1.5	0.6	−0.9
Iran	6.4	5.8	5.5	5.0	..	..	18.4	26.0	22.0	10.1	11.2	6.7
Africa	**6.1**	**6.3**	**5.9**	**6.0**	**5.2**	**4.7**	**6.2**	**10.2**	**8.3**	**0.4**	**3.0**	**0.2**
Nigeria	5.9	9.1	6.2	8.1	..	..	5.5	11.0	11.1	2.1	6.2	0.6
South Africa	5.1	3.8	3.8	3.3	..	..	7.1	11.8	8.0	−7.3	−8.0	−8.1
Asia	**10.0**	**8.2**	**8.4**	**7.7**	**8.3**	**7.1**	**4.9**	**7.3**	**5.8**	**6.8**	**5.2**	**5.0**
China	11.9	9.3	9.7	9.3	9.7	8.5	4.8	6.4	4.3	11.3	9.5	9.2
India	9.3	7.9	7.9	6.9	7.8	6.3	6.4	7.9	6.7	−1.4	−2.8	−3.1
Indonesia	6.3	6.1	6.1	5.5	..	..	6.2	9.8	8.8	2.5	0.1	−0.1
Latin America[2]	**5.6**	**4.4**	**4.6**	**3.2**	**4.5**	**2.5**	**5.4**	**7.9**	**7.3**	**0.4**	**−0.8**	**−1.6**
Argentina	8.7	7.0	6.5	3.6	..	..	8.8	9.1	9.1	1.7	0.8	−0.6
Brazil	5.4	4.8	5.2	3.5	5.2	3.0	3.6	5.7	5.1	0.1	−1.8	−2.0
Mexico	3.2	2.0	2.1	1.8	2.0	0.9	4.0	4.9	4.2	−0.6	−1.4	−2.2

Source: IMF (World Economic Outlook) April 2008 and October 2008; IMF (World Economic Outlook Update) November 2008.

[1] *Forecast.*
[2] *CESEE here excluding European CIS countries; Latin America including the Caribbean.*

According to the IMF, *Asia*, followed by the *Middle East* and *Africa*, will post the highest growth rates in 2009.

In *Asia*, industrialized countries' weak demand should largely be offset by domestic demand components and regional momentum. Although growth will slacken, these countries are likely to maintain their economic stability owing to low debt ratios. While growth in China slowed on the back of weaker export growth in the first half of 2008, in India flagging growth was attributable to sluggish investment. In *Latin America* too, growth in the entire year of 2008 will be largely driven by domestic demand (despite worsened financing conditions), as the positive terms-of-trade effects, which had resulted from the high commodity prices in some countries until the third quarter of 2008, have been fading. Also, in *Africa*,[2] growth up to the third quarter of 2008 was supported by high energy and commodity prices (especially prices of metals, coffee, cocoa and cotton). The price slump of these goods seen afterwards put a sharp brake on growth.

[2] *Libya and Egypt, which belong to the regional group of the Middle East, are not included here.*

At the same time, risks to growth in this region increased in conjunction with the risk of a sharper decline in global demand. In the *Middle East*, oil-importing Egypt's sustained (exceptionally) high growth, which is also supported by tourism, is worth highlighting. In *Turkey*, growth is hit by weaker demand from the EU (the automotive industry, in particular, is adversely affected) and by sluggish investment. In addition, restrictive monetary policies for combating inflation as well as fiscal consolidation measures are dampening the economy. According to the IMF, the credit markets' current drying up poses a particular threat to the Turkish economy.

The IMF revised its November 2008 growth outlook for 2008 for the EMEs and the DCs as a whole slightly down to the level of the April 2008 outlook. The regional projection for 2008 revised most pronouncedly in the November 2008 outlook was the projection for *Africa*, which was revised downward. For 2009, the November outlook for the EMEs and the DCs as a whole put growth 1 percentage point lower than the October outlook. The IMF's downward revisions were significantly above-average for the CIS. This is traceable to the problems seen in the Russian banking sector, which are closely linked with the international financial crisis and the slump in commodity and energy prices (see the section on the CESEE of this Report).

Overall, EMEs and DCs will generate a continued high *current account surplus* in 2008, which will probably decrease in 2009. However, large differences exist between, as well as within, individual regions, depending above all on the availability of commodities. Europe is the only region with a higher deficit, which – according to the IMF – is set to further increase in 2009. But also in Latin America, the small deficit anticipated for 2008 will widen in 2009. In addition to Ukraine, other EMEs with larger current account deficits (including Turkey, South Africa) could have financing problems owing to enhanced investor risk aversion and tighter external lending conditions, according to the IMF.

The slowdown in growth in most EMEs and DCs has meant that inflationary pressures, which emerged primarily from markedly higher energy and – as a result – food prices, but also from robust domestic demand, are now easing. In a number of countries, inflation had been falling notably already before the escalation of the international financial crisis in 2008 and the resulting dramatic deterioration in growth outlooks, in particular owing to the decline in energy and food prices.

Net Capital Inflows to the Private Sector Expected to Fall Sharply in 2009 while Net Capital Outflows from the Public Sector Persist

Many EMEs and DCs saw historically high *net capital inflows to the private sector* in 2007. Traditionally, net inflows are dominated by foreign direct investment (FDI). However, 2007 also saw net portfolio investment inflows and sharp rises in net credit inflows. The IMF expects total net inflows to the private sector will weaken slightly in 2008 and markedly in 2009. The reasons anticipated for this are (increasingly stronger) net outflows of volatile portfolio investment (increased foreign investment by Asia's private sector), smaller net credit inflows in 2008 (turnaround of previously strong net inflows into net outflows in the CIS), and net credit outflows in 2009 (similar turnaround in Asia).

Table 3

Net Capital Inflows to Emerging Market Economies and Developing Countries[1]

	2004	2005	2006	2007	2008[2]	2009[2]
	USD billion					
Net capital inflows to the private sector	**236.5**	**248.7**	**223.0**	**632.8**	**528.6**	**286.6**
By instrument						
Direct investment	189.0	261.8	246.0	379.0	443.6	414.6
Portfolio investment	12.7	−20.4	−107.3	54.5	−6.6	−89.1
Other flows (especially loans)	34.8	7.3	84.4	199.5	91.8	−38.7
By region (country)						
Europe	74.3	119.2	119.9	173.8	179.9	181.7
CIS	3.1	31.7	56.8	125.3	19.8	26.0
Middle East	−16.9	−57.5	−47.5	33.7	−99.6	−86.2
Africa	13.1	26.3	36.0	39.6	43.7	62.3
Asia	147.8	90.9	48.3	163.0	291.6	22.0
Latin America and the Caribbean	15.2	38.1	9.5	97.4	93.2	80.8
Net capital inflows to the public sector[3]	**−71.1**	**−109.9**	**−158.0**	**−140.7**	**−158.6**	**−135.4**
Memorandum item						
Current account balance	*300.0*	*525.1*	*709.9*	*745.5*	*869.6*	*695.6*
Reserve assets[4]	*−508.4*	*−595.8*	*−754.3*	*−1256.1*	*−1270.1*	*−920.2*
of which: held by China	*−206.3*	*−207.0*	*−247.0*	*−461.8*	*−670.0*	*−500.0*

Source: IMF (World Economic Outlook), October 2008.

[1] This table shows aggregated balance of payments data sets of 131 nonindustrialized countries, including 44 major EMEs. Europe = Central and Eastern Europe excluding European CIS countries and including Turkey. Asia = including Hong Kong, Korea, Singapore and Taiwan.
[2] Forecast.
[3] A minus sign indicates net capital outflows from developing countries to industrialized countries.
[4] A minus sign indicates an increase.

Both, in 2008 and 2009, *FDI* will continue to be the most important form of net capital inflows to the private sector in all EME regions – except for Europe, where *net credit inflows* are likely to remain the key external source of financing in this period.

Central, Eastern and Southeastern Europe (CESEE), the only region with a traditionally high *current account deficit,* has been attracting the highest *net capital inflows to the private sector* since the mid-1990s. In 2008, CESEE is likely to temporarily cede this leading position to Asia, as 2008 is currently witnessing extraordinarily high net lending to Asia. Like CESEE, Latin America will have a(n) (albeit small) current account deficit in combination with net capital inflows to the private sector in 2008 and 2009. In Asia, Africa and the CIS, the combination in existence since 2004 of *current account surpluses* and *net capital inflows to the private sector* will continue in 2008 and 2009 as well. Only the Middle East will see *net capital outflows from the private sector* (investment of *current account surpluses* in the form of petrodollars) in both years.

In 2008 and 2009, *net capital outflows from the public sector excluding the central bank* (foreign debt repayments as well as investment, of which some via sovereign wealth funds) are anticipated for every region (apart from Africa and Latin America), with by far the largest in the Middle East. Moreover, according to the IMF, the *buildup of foreign currency reserves* is likely to continue in every region in 2008 and 2009, although growth in 2009 may lag behind the record levels of 2008. The reason for this is a smaller buildup of reserves in Asia, where absolute growth will nonetheless remain the highest world-

wide since the largest absolute current account surplus will be generated in this region.

Claims of Austrian Banking Sector Lead in CESEE

As at end-March 2008, the claims of the Austrian banking sector[3] on CESEE residents came to 8.5% of the nominal GDP of recipient countries in the region, thus still exceeding the claims of other countries on this region (see table 4). The Austrian banking sector accounts for almost a fifth of the claims of all BIS reporting banks on this region.

Compared with other countries' banks, Austrian banks held the highest level of claims on Slovenia, the Czech Republic, Slovakia, Romania, Croatia and Ukraine and the second-highest on Hungary (after Germany) and Bulgaria (after Italy). In terms of its level of claims on Russia, Austria, together with Italy in fourth place, ranks after Germany, France and the Netherlands. In the case of Slovenia (a euro area country), Slovakia, the Czech Republic and Croatia, the claims of all BIS reporting banks are concentrated on Austrian banks to a particularly large extent, with the latter holding a share of 30% or more.

Eurobonds Severely Affected by the International Financial Crisis

The performance of the international Eurobond market was impacted by the global financial turmoil as early as from summer 2007. After the average *yield spread* of EME issuers' U.S. dollar and euro-denominated government bonds relative to U.S. and euro-area government bonds – measured by J.P. Morgan's (Euro) EMBI (Emerging Market

Table 4

Claims of BIS Reporting Banks on Central, Eastern and Southeastern Europe[1]

	AT	DE	IT	FR	NL	SE	BE	U.K.	Europe[2]	U.S.A.	Japan
	% of GDP (2007) of the recipient country										
CESEE	8.5	6.2	6.0	4.9	2.9	2.8	3.6	1.2	42.2	1.6	0.7
EU Member States of CESEE (excluding the Baltic countries)											
Bulgaria	12.4	5.3	15.5	6.3	1.3	0.0	4.5	0.6	78.9	0.9	0.2
Czech Republic	31.0	5.4	8.3	18.6	3.3	0.1	24.2	..	95.4	1.8	0.6
Hungary	22.8	23.1	17.3	6.8	3.7	0.2	11.1	..	91.3	1.9	1.5
Poland	3.3	10.3	11.4	4.8	6.0	1.4	4.7	0.3	52.8	2.5	1.4
Romania	22.8	1.9	6.1	11.2	4.5	0.1	0.6	0.1	61.1	0.8	0.1
Slovakia	37.5	4.5	22.6	7.0	6.8	0.1	11.7	..	92.7	1.5	0.1
Slovenia	29.9	25.8	14.7	5.5	1.6	0.0	5.7	0.6	86.3	0.7	0.9
Other countries of CESEE											
Croatia	64.5	31.6	56.5	14.9	0.3	0.0	0.7	0.7	171.6	0.5	0.9
Ukraine	8.9	3.3	3.3	7.2	2.5	3.5	0.5	0.5	36.1	1.2	0.6
Russia	1.5	3.1	1.5	2.5	1.6	0.5	0.6	..	14.1	1.1	0.7
Turkey	0.4	2.4	..	2.0	2.7	0.1	2.1	..	17.6	2.0	0.5

Source: BIS, Eurostat, Thomson Financial, national sources and OeNB calculations.

Note: The claims shown here correspond to the "Consolidated Foreign Claims of BIS Reporting Banks" published by the BIS (BIS Quarterly Review September 2008, table 9B). For every bank, these include the claims (in all currencies) of both parent and subsidiary companies on borrowers outside the group in the relevant countries. In this consolidated overview, claims of Austrian banks do not include claims of the Bank Austria (BA) group.

[1] As of end-March 2008.

[2] In addition to the countries of origin listed individually, "Europe" also comprises Denmark, Greece, Ireland, Portugal, Finland, Spain, Switzerland, Norway and Slovenia.

[3] *The consolidated BIS statistics do not include the BA group among Austrian banks.*

Bond Index) Global – had reached a historic low of 150 (USD) and 50 (EUR) basis points in June 2007, it moved in parallel with the ups and downs of the international financial market's other segments.

Until JPMorgan Chase acquired U.S. investment bank Bear Stearns with government assistance in mid-March 2008, the average bond yield spread had widened by 190 (USD) and 95 (EUR) basis points. This widening arose primarily because Eurobond yields did not replicate the decline in benchmark bond yields, as the yields on 10-year U.S. government bonds in this period narrowed by 165 basis points and the yields on 10-year euro-area government bonds declined by 75 basis points. Following the bailout of Bear Stearns, these spreads narrowed by almost 80 and 40 basis points respectively until end-May 2008 but then widened until mid-September by just under 100 and 30 basis points respectively. After widening, hence, between the start of the financial turmoil in mid-2007 and mid-September 2008 by 210 basis points and 85 basis points respectively, during the escalation of the crisis following Lehman Brothers' filing for bankruptcy on September 15, 2008, they jumped by 350 and 240 basis points to 710 and 380 basis points respectively until mid-November 2008, while yields on USD benchmark bonds (10-year U.S. government bonds) on balance hardly changed at all (increasing slightly until mid-October and falling afterwards) and yields on EUR benchmark bonds (10-year government bonds of euro area countries) narrowed by 50 basis points.

After the *average total return on Eurobond investment* was close to zero for both indices from March to mid-September 2008, both index portfolios suffered (non-annualized) total losses of 19% (USD portfolio) and 8% (EUR portfolio) between mid-September and mid-November 2008. For investors from the euro area, these USD portfolio losses were partially offset by the parallel appreciation of the U.S. dollar by 12%.

Table 5

Eurobonds: Spreads to Reference Bonds and Returns by Region

	EMBI Global (USD)						Euro EMBI Global (EUR)					
	Weight in overall index in %	Yield spreads in basis points		Total return in %	Rating	Duration	Weight in overall index in %	Yield spreads in basis points		Total return in %	Rating	Duration
	Nov. 13, 2008	Nov. 13, 2008	Change since March 31, 2008	Change since March 31, 2008	Nov. 13, 2008	Oct. 31, 2008	Nov. 13, 2008	Nov. 13, 2008	Change since March 31, 2008	Change since March 31, 2008	Nov. 13, 2008	Oct. 31, 2008
Overall index	**100.0**	**711**	**387**	**–19.4**	**BB+**	**5.95**	**100.0**	**381**	**252**	**–7.9**	**BBB+**	**4.72**
Africa	2.3	797	369	–19.8	BB+	4.21	3.9	715	461	–13.6	BBB+	4.03
Asia	17.4	610	338	–17.7	BB+	5.79	3.4	342	227	–3.9	BBB	3.76
Europe	27.6	708	436	–20.8	BBB–	5.47	76.6	336	233	–7.5	BBB+	4.99
Latin America	49.1	740	393	–20.3	BBB–	6.47	16.1	590	366	–9.0	BBB	3.67
Middle East	3.6	741	164	–4.1	B–	4.35	..	..	..	..	..	..

Source: Bloomberg, J.P. Morgan, OeNB calculations.

Note: The EMBI Global and the Euro EMBI Global indices differ in composition (in terms of currencies, countries covered, instruments, maturities, etc.). Differences in the level and development of yield spreads and returns, as well as in other index features, can be attributed in part to this different composition and in part to different investor structures. The rating is calculated as the average of Moody's, Standard & Poor's und Fitch's ratings for long-term foreign currency sovereign debt and is expressed in the rating categories of Standard & Poor's.

Clearly, the decline in demand for Eurobonds issued by EME sovereign borrowers and the resulting widening of yield spreads were not in line with the positive *development in fundamental data* measured by the number of rating upgrades (by the three largest rating agencies) for countries included in both these indices between end-March and end-September 2008. This number continued to exceed by a wide margin the number of rating downgrades, albeit to a smaller extent than previously. In fact, the key factor was the steep increase in global risk aversion, which also infected this segment of the international financial market.

European USD and EUR-denominated government bonds were hit by the financial upheaval in very different ways. From mid-2007 to mid-September 2008, the spreads of Ukraine, Romania and Bulgaria and, to a lesser extent, those of Croatia and Hungary widened more sharply than the average spreads for the broad index. Also from mid-September to mid-November 2008, this was the case in these countries as well as in Turkey and Russia. By contrast, the spreads of Slovakia as well as those of the Czech Republic and Poland widened in both these periods to a much smaller extent than for the broad index.

CESEE: Countries with External Imbalances Worse Hit by the International Financial Crisis

Both the financial upheaval from mid-2007 and the escalation of the financial crisis from mid-September 2008 primarily hit the financial assets of countries that were exposed and vulnerable owing to their external position (balance of payments, foreign debt) or to their share of domestic foreign currency loans. This applies particularly to Eurobonds issued by sovereign borrowers (see above) and – with qualifications – to government bonds denominated in national currency and to national currencies themselves (see below). These differences are also to a lesser extent mirrored in the performance of stock markets. In addition to Ukraine, where political uncertainties also played a decisive role, the countries concerned included, above all, those in Southeastern Europe and Hungary. The repercussions of the international financial crisis and the change in risk aversion came about via several different channels. For instance, both banks and their customers backed out of mutual funds, which for their part had to liquidate positions rated with a relatively high risk in order to disburse their shares. Furthermore, banks in EMEs were also hit by the general crisis of confidence in the interbank market – in both the money market and foreign exchange swap[4] markets. Problematic financial developments in these CESEE countries were therefore not only triggered as a result of a jittery market reacting very sensitively to deteriorating fundamentals. Indeed, Hungary's example, in particular, highlights the fact that increased risk worldwide can lead to "contagions" by giving rise to problems in countries where the fundamentals have appreciably improved in recent years, but the residual risks are considered as too high now – this after far worse fundamentals and more substantial risks had previously not caused a negative reaction.

[4] *Foreign exchange swaps are foreign exchange transactions that are executed for a specified period of time and based on the interest rate spreads between two currencies.*

Effects of the Financial Crisis in Central and Southeastern Europe

In *Hungary*, the demand for forint-denominated government bonds slumped in early October 2008. This resulted in forint-denominated government bond yield spreads widening sharply relative to benchmark bonds in the euro area to a level last seen in September 2004. After narrowing by 110 basis points to 360 basis points from mid-March to mid-September 2008 and then widening to 420 basis points until end-September, they jumped to 670 basis points by October 10, 2008. The backdrop to this collapse in demand is likely to have been the fact that the foreign exchange swaps, on the basis of which foreign swap partners had invested the received forint-denominated liquidity in government securities, had largely dried-up. There was also speculation about financial difficulties besetting OTP, the country's largest and Hungarian majority-owned bank, whose stock price lost 40% in value in the week to October 10, 2008, adversely affecting the index (–21 %) in which OTP has a large share. Indeed, OTP Bank, too was hit by the slump in international foreign exchange swap markets, since it needed such deals to close otherwise open foreign currency positions owing to, in particular, the (domestic) foreign currency loans it had issued. It was therefore constrained to switch to the foreign currency cash market, triggering depreciation pressures on the currency. Fears about government intervention that may be required, which could increase government debt, were intermixed with associations with the problems currently faced by Iceland and its banks. Owing to foreign portfolio investors selling their stocks and bonds, the demand for foreign currency grew further and the forint depreciated by 7% against the euro from end-September to October 10, 2008. In response to this fall in financial asset prices, immediate measures were taken:

– The Hungarian central bank (supported by a refinancing line from the ECB) began to act as a foreign exchange swap partner to improve (foreign currency) liquidity in the interbank market.
– To restore equilibrium in the bond market, the ceiling for Hungarian pension funds' investment in government bonds was skipped, the budget deficit target of 3.8% for 2008 was reduced to 3.4% of GDP and the volume of new issuance in 2008 was lowered to the amount required for the roll-over of existing debt. For 2009, tax-cutting plans were postponed and the deficit target was lowered to 2.9%. Last but not least, bond repurchase auctions were held.
– Moreover, the Hungarian government immediately implemented the EU-wide decision stipulating a minimum deposit guarantee of EUR 50,000, also establishing government guarantees in the event of bank failures.

Still, the spread of forint-denominated government bonds continued to widen until October 23, 2008 (by another 160 to 830 basis points), and the forint depreciated against the euro by another 8% (i.e. the Hungarian currency had lost almost 15% of its value against the euro since September 2008).

On October 22, 2008, the Hungarian central bank increased its key interest rate by 300 basis points to 11.5%. At end-October, the IMF, the EU and the World Bank agreed with the Hungarian government on a loan package totaling EUR 20 billion, of which the IMF and the EU provided EUR 12.5 billion and EUR 6.5 billion respectively. Under this agreement, the gov-

ernment committed itself to using this means also for stabilizing the banking sector (by establishing a refinancing guarantee fund and a capital increase fund) and to reduce the budget deficit to 2.5% in 2009 by making, above all, savings in public sector salaries and pensions. This loan agreement also came with the expectation that foreign banks will continue to remain active in Hungary to the extent they have to date. News about the preparation and adoption of this package triggered a positive market response: the forint appreciated strongly against the euro until early November (+9.5%), and the bond spread narrowed notably (–210 basis points). Afterwards, until mid-November, the currency saw a gradual depreciation and the forint-bond spread a gradual widening.

The events in Hungary had spillover effects in *Poland* and in the *Czech Republic*. From end-September to October 23, 2008, the yield spread of national currency-denominated government bonds widened by 180 to 320 basis points and by 110 to 80 basis points respectively, after having narrowed by 50 and 80 basis points respectively between March and mid-September 2008. The Polish zloty and the Czech koruna depreciated against the euro by 13% and 5% respectively between end-September and October 23, 2008; before that, from March to August 2008, the two currencies had appreciated by 9% and 6% respectively and depreciated only slightly afterwards. As a countermeasure, the Polish central bank embarked on improving liquidity by introducing foreign exchange swaps and by stepping up the supply of refinancing credit while the government approved as a precautionary measure a bill for state assistance facilities (guarantees, loans and participating interests) for fragile financial institutions. In the Czech Republic, the government cancelled government bond auctions, and the central bank began to offer liquidity-injecting repo deals (with government bonds as loan collateral). News about the preparation and announcement of the IMF's and the EU's credit arrangement with Hungary triggered positive contagion effects for both countries. In a first response, the currencies and the national currency-denominated government bonds recouped a considerable part of the losses suffered previously due to contagion; after that, both currencies depreciated gradually until mid-November 2008.

In *Bulgaria*, the government stood guarantor for interbank loans, introduced a government bond repurchase scheme for domestic financial institutions and announced as a precautionary measure the possible provision of government deposits at banks.

As in Hungary, the EU-wide decision to increase the deposit guarantee to a minimum amount of EUR 50,000 was implemented in all the other EU countries of the region. Besides Hungary and Lithuania, which stipulated a minimum amount of EUR 100,000, only *Slovakia* went beyond the minimum amount of EUR 50,000 set by the EU, introducing an unrestricted deposit guarantee. *Croatia*, which is currently in EU accession talks, followed suit by increasing its deposit guarantee from EUR 14,000 to EUR 56,000. To boost foreign currency liquidity in the interbank market, the Croatian central bank also suspended its special reserves requirement (applicable to commercial banks), under which 55% of newly raised foreign loans must be deposited as reserves with the central bank.

Effects of the Financial Crisis in Ukraine

In *Ukraine*, the overheating of the economy, in tandem with a credit boom and strong consumption growth, as well as the fall in steel prices in the first half of 2008, resulted in the current account deficit deepening to 7.7% of GDP (first half of 2007: 3.3%), which was only partly covered by FDI inflows (6.2% of GDP). However, the Ukrainian currency, the hryvnia, came under considerable appreciation pressure owing to high capital inflows and, at end-May 2008, the central bank revalued its U.S. dollar-pegged currency band by +4%. In mid-September 2008, the international financial crisis hit Ukraine in manifold ways: First, the outlook for the economy and, thus, for steel exports and FDI inflows deteriorated considerably (while price rises for Russian gas imports in 2009 are waiting in the wings); second, greater risk aversion led to the increase in the external deficit being revalued; and third, many Western and Russian portfolio investors required liquidity. In addition, the government coalition collapsed, followed by uncertainty about fresh elections. This led to a marked widening of the Eurobond spreads, a slump in stock prices and the depreciation of the hryvnia from end-August to end-September 2008 by 8% against the U.S. dollar (implying a shift from the strong towards the weak end of the currency band), which equaled a 5% depreciation against the euro. When the weak end of the currency band was penetrated, the central bank in early October 2008 responded by devaluing and expanding the currency band as well as by making massive foreign exchange interventions. After the central bank had to rescue a medium-sized bank by granting loans in early October, emergency measures were taken to ensure the stability of the banking sector (including a ban on early withdrawals, an increase in the deposit guarantee and restrictions on new foreign exchange-denominated lending). In mid-October 2008, Fitch and Standard & Poor's downgraded the rating for long-term sovereign foreign currency debt. Finally, on October 26, 2008, the IMF arranged with the Ukrainian government a 2-year stand-by loan of USD 16.5 billion. From end-September to October 26, 2008, the hryvnia depreciated by another 14% against the U.S. dollar but remained almost stable against the euro (because the euro also depreciated). Despite the announcement of the credit arrangement, the currency continued to depreciate by a hefty 17% against the U.S. dollar and 18% against the euro within three trading days. This depreciation was successfully reversed until mid-November 2008, only after the Ukrainian parliament had given its definitive consent to the loan agreement on October 31, 2008, and after the central bank's continued massive interventions in the foreign exchange market. From end-September to end-October 2008, Ukraine's foreign currency reserves declined by 5% (measured in euro) to EUR 25 billion. As a result of the euro's depreciation against the U.S. dollar within the same period, however, the loss in reserves came to 15% measured in U.S. dollars. The arrangement with the IMF stipulates the requirement of a restrictive monetary and fiscal policy as well as that of wide-ranging structural reforms (including stabilizing the banking sector).

Effects of the Financial Crisis in Russia

But the adverse effects of the international financial crisis were not confined to countries with (relatively) high cur-

rent account deficits or foreign debt (both measured in GDP terms). *Russia* too has serious problems to overcome in its domestic financial sector even if its problems here are embedded somewhat differently. As early as from August 2008, international security policy tensions in the wake of the Georgian crisis, as well as the drop in energy and commodity prices, triggered both net outflows of portfolio capital and capital flight. This was yet further exacerbated by the escalation of the international financial crisis, not least also because the crisis reinforced expectations of a continued fall in energy prices. The thus induced stock market slump, accompanied by the suspension of trading for entire days on several occasions, gave rise to challenging liquidity problems, particularly, for around 1,150 small and medium-sized Russian banks, as stocks had frequently been provided as loan collateral and their slump in value hugely increased margin requirements (in the form of liquid funds). The Russian central bank reacted rapidly by intervening massively in foreign exchange markets to prop up the ruble and by injecting liquidity via short-term loans. This action was then followed by the introduction of several comprehensive packages of measures. In mid-September 2008, the minimum reserve requirement ratios were lowered by 4 percentage points, and the government announced several measures: (1) financial assistance for 28 large and medium-sized banks as well as for major exchange-listed enterprises in the form of longer-term deposits, loans and stock purchases; (2) the reduction of export taxes on oil; (3) the setting-aside of part of the official foreign exchange reserves to ensure the servicing of private-sector foreign debt; and (4) the increase of the deposit guarantee by 75% to around the equivalent of EUR 19,400. At end-September 2008, a major private bank, which had fallen into difficulties, was taken over by state-owned Vneshekonombank (VEB). In early October, further measures of assistance – particularly, for major banks – were announced, including the granting of long-term (5-year) loans. On October 10, 2008, the Russian parliament approved a number of previously announced measures. Overall, the total amount of disbursements and assumptions of liability came to some EUR 150 billion or around 17% of GDP. From early August to end-October 2008, Russia's foreign currency reserves (which are held partly in U.S. dollars, partly in euro) declined by 4% (measured in euro) to EUR 380 billion. Due to the euro's depreciation against the U.S. dollar within the same period, however, the loss in reserves came to 19% measured in U.S. dollars. In the first half of November, the Russian central bank embarked on a policy of a controlled depreciation of the ruble: on the one hand, it replaced the ruble's close peg to a currency basket consisting of 55% U.S. dollars and 45% euro, with a +/–1% currency band – the ruble immediately moved towards the weak end of the currency band –, while on the other hand it raised the refinancing rate by 100 basis points to 12% on November 11, 2008. Apart from political uncertainties and institutional weaknesses, Russia was hit by the international financial crisis via the simultaneous deterioration in the outlook for its current account surplus (decline in energy prices) and the negative impact on its external financial account. The latter was especially large, as Russia's financing flows were closely connected to stock market performance and foreign parent banks only contribute a small share of the total external financing of the Russian banking sec-

tor, in which they hold only a relatively small market share. Nevertheless, Russia managed to adopt wide-ranging countermeasures thanks to its official foreign exchange reserves and state reserve funds, which were built up on the bedrock of high energy and commodity prices.

Against the backdrop of the international financial crisis, the key *medium-term risk factors for the CESEE countries* include, above all, the negative economic outlook for the euro area as well as the accompanying weakening of the export market for countries in this region and the decline of FDI inflows to these countries. At the same time, the financial crisis has also exacerbated the conditions for, and possibly the scale of, external financing by borrowing. This is likely to hit primarily countries with high current account deficits.

The following presentation and analysis of currency trends show how strong CESEE countries – with some significant differences in their fundamentals – are ultimately all influenced by the international financial market situation and by the appetite for risk.

Regional Currencies under Depreciation Pressure owing to the Global Financial Crisis

Whereas the Bulgarian lev in the framework of the currency board regime remained firm also during the financial turmoil, the trend relative to the euro for currencies under review here with a nonpegged foreign exchange rate (Slovak koruna, Czech koruna, Polish zloty, Hungarian forint, Romanian leu, Croatian kuna, Russian ruble) showed a similar picture to some degree.

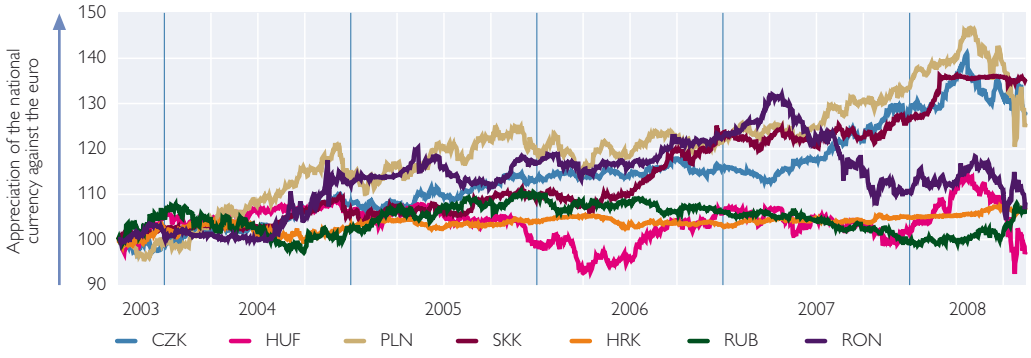
All these currencies firmed against the euro *from March to end-July/early August 2008* – particularly strongly in the case of the Romanian leu (+5%) and the Hungarian forint (+11%), which had previously depreciated by 17% and 6% respectively from mid-2007 to March 2008, and the Slovak (+7%), Czech (+6%) and Polish currencies (+9%), which had previously already appreciated by 4%, 15% and 6% respectively (see chart 1).

The appreciation of the Slovak koruna resulted in a market exchange rate within the +/–15% band, which was 12.2% below the SKK/EUR central rate (or, in euro terms, 13.9% above

Chart 1

National Exchange Rates against the Euro

Dec. 31, 2003 = 100



Source: Thomson Financial.

Note: Index based on euro per unit of national currency.

the central rate) on May 27, 2008. At Slovakia's request, it was unanimously agreed on May 28, 2008 (effective as of May 29) to reduce the SKK/EUR central rate to the 15% lower hitherto strong end of the currency band, i.e. to revalue the central rate of the Slovak koruna (measured in euro) within ERM II by 17.6%. In the EU's statement, this appreciation was described as justified owing to the development in economic fundamentals. No further appreciations were seen subsequently within this new band, as the market rate continued to stay close to the central rate, which was subsequently fixed also as the conversion rate for the euro changeover on January 1, 2009.

Slovakia's successful path toward euro changeover and the appreciation of its national currency might also have had a tonic effect on other flexible currencies of the region. Moreover, the strong uptrend of these flexible currencies was supported by the generally positive (albeit, in some cases, uniformly so) perception of the region by investors. In the final analysis, in view of the steep rise in inflation in some of these countries such as Romania, the (in certain cases) already occurred tightening of interest rate policy, or the anticipation thereof, may have had a major impact. Interest rate differentials are always likely to gain quickly in importance when risk aversion subsides to some extent worldwide.

From end-July/early August to mid-September 2008, the currencies of the Czech Republic (–3%), Poland (–4%), Hungary (–3%) and Romania (–2%) underwent a modest corrective depreciation against the euro while the (strongly managed) Croatian kuna continued to firm slightly on the back of summer tourism (+1.5%).

After the collapse of Lehman Brothers in *mid-September 2008*, the following currencies depreciated sharply against the euro *until mid-November:* the forint (–11%), the zloty (–10%), the leu (–5%) and the Czech koruna (–3.5%).

The *ruble*, which is tied to a currency basket (55% U.S. dollar, 45% euro), firmed against the basket *from mid-March to end-July 2008*, thereby appreciating somewhat more strongly against the euro (+1.5%) than would correspond to the mere partial

Table 6

Fundamental Factors Influencing Exchange Rate Developments

	GDP growth (%)		Contribution of net exports to GDP growth (percentage points)		Balance of trade and services (% of GDP)		Income balance (% of GDP)		Demand for external financing (% of GDP)[1]		Demand for external financing plus net FDI inflows (% of GDP)	
	H1 07	H1 08	H1 07	H1 08	H1 07	H1 08	H1 07	H1 08	H1 07	H1 08	H1 07	H1 08
Slovakia	8.8	8.1	6.1	−0.3	0.0	−1.1	−3.0	−4.2	−3.2	−5.0	−0.5	−3.8
Czech Republic	6.6	4.9	0.3	3.4	5.9	7.2	−6.3	−8.9	−0.6	0.0	3.2	3.1
Poland	6.8	6.1	−1.4	−0.3	−2.9	−3.5	−3.4	−3.4	−3.5	−3.7	0.3	−1.8
Hungary	1.9	1.9	3.2	2.5	1.2	2.0	−7.9	−7.6	−6.7	−5.0	−7.9	−0.7
Bulgaria	6.5	7.1	−8.9	−5.2	−23.6	−27.1	−0.7	−1.2	−22.6	−23.8	−3.0	−12.9
Romania	5.9	8.8	−16.4	−14.3	−16.4	−15.2	−5.3	−4.8	−16.1	−14.4	−8.7	−5.3
Croatia	6.8	3.8	−0.6	−3.0	−17.2	−19.0	−4.8	−5.4	−19.0	−21.7	−6.5	−12.5
Russia	7.7	8.0	−7.6	−6.0	9.4	11.4	−2.7	−3.3	6.5	8.0	6.8	9.4

Source: Eurostat, national central banks, OeNB.

[1] *Demand for external financing = sum of current account balance and capital account balance, hence demand for financing in addition to demand for financing due to the financial account (e.g. via borrowing in order to roll over existing external liabilities, flight of capital).*

replication of the appreciation of the U.S. dollar against the euro in this period. *From end-July to mid-November 2008*, however, the ruble steadily softened against this basket. At +6%, it appreciated against the euro significantly more weakly than by the proportional appreciation of the U.S. dollar against the euro, which would have been +14%. The ruble's weakness was the result of the repercussions of the financial crisis on Russia (see above), which were only partly offset by the Russian central bank's massive interventions in the foreign exchange market.

Economic growth was robust in almost all CESEE countries in the first half of 2008, ranging between 4.3% in Croatia and 8.8% in Romania. Hungary was an outlier yet again, with growth amounting to a mere 1.9% owing to the effects of fiscal consolidation measures as well as to structural weaknesses (low investment and employment rates). Compared with the previous period a year ago, growth slowed in most countries of the region, except in Romania, Bulgaria and Russia. Among domestic demand components, investment growth was (considerably) more vigorous than private consumption growth in the first half of 2008 in all the countries under review (except for Slovakia). Private consumption growth in Hungary remained negative. Only in Romania and Russia did private consumption grow far more sharply than GDP. Leading indicators for the third quarter of 2008 show a notable slowdown in growth, but – contrary to the euro area – no recession in the CESEE region.

The *contribution of growth to net exports* was significantly negative in Romania and – to a lesser extent – in Russia, Bulgaria and Croatia. In Romania and Russia, this is explicable by, above all, very buoyant private consumption growth in addition to brisk investment activity.

The *combined current and capital account balance* remained in the red (i.e. a need for external financing exists) in all countries of the region with the exception of Russia and – most recently – the Czech Republic, with the level and structure in the individual countries differing very widely. In Central European countries (except for the Czech Republic), the external financing requirement did not exceed 5% of GDP, and the negative income balance was the main reason and (in Poland) a main joint reason for the external financing deficit. In Southeastern European countries, the (in some cases) huge external financing deficits stem from the performance of the trade and services balance, with additionally the income balance being significantly negative in Romania and Croatia. Moreover, in Bulgaria and Croatia, the current account deficit increased while net FDI inflows declined, resulting in a marked increase in the remaining external financing requirement. However, for Croatia, in particular, it should be highlighted that its current account deficit is always far lower in the year as a whole owing to a tourism-induced surplus in the second half of the year in GDP terms. In 2008, moreover, Croatia will also see net FDI inflows rise significantly owing to large-scale privatization in the oil industry.

At almost 12 percentage points in mid-November 2008, the Romanian leu registered by far the widest *short-term interest rate spreads relative to the euro area*. Only in Romania had the short-term interest rate differential relative to the euro area widened considerably from March to mid-September 2008 (+240 basis points to 8.6%), in part owing to interest rate hikes

(+125 basis points), in part owing to the increase in risk premiums. The differential continued to widen afterwards, reaching a very high level (up to 45%) for a few days in mid-October, which were ascribed – in part – to the approaching end of payment periods and foreign currency interventions to support the leu. In Croatia, the short-term interest rate spread narrowed from March to mid-September 2008 (–65 basis points) only to then widen substantially until mid-November (+360 basis points to 5%). In Bulgaria, the short-term interest rate spread widened somewhat from March to mid-September 2008 (+30 basis points) and likewise widened substantially until mid-November (+140 basis points to 3.7 %). In Hungary and Poland, short-term interest rate spreads remained fairly stable from March to mid-September 2008. In Slovakia and the Czech Republic, the short-term interest rate spread relative to the euro area was still negative, widening even further, above all, owing to the increase in interbank interest rates in the euro area. With the exception of Slovakia, these Central European countries saw a significant increase in short-term interest differentials between mid-September and mid-November 2008: Hungary (+380 basis points to 7.5%), Poland (+90 basis points to 2.5%) and Czech Republic (+120 basis points to 0%). These increases are in part attributable to different key interest rate changes: while the euro area saw interest rate cuts by a total of 100 basis points, interest rates were raised by 300 basis points in Hungary, remained unchanged in Poland and were cut by 75 basis points in the Czech Republic.

Major *interventions in the foreign exchange markets* to influence the exchange rate momentum were made during the reporting period in Romania and, above all, in Russia.

In mid-2008, *gross foreign debt* was especially high in Hungary, Bulgaria and Croatia. Their foreign debt burden remains high also after the amount of their official foreign currency reserves is taken into account. In Hungary, the public and banking sectors account for most of the foreign debt. In Bulgaria and Croatia, by contrast, particularly private nonbanks and the banking sector have raised the largest amounts of foreign loans. To a fairly large extent, the foreign debt of these countries' banking sectors consists of liabilities to foreign parent banks. Apart from the foreign debt, there exists also a relatively high share of domestic foreign currency debt of private nonbanks in some countries, like in particular in Hungary, Romania and Croatia. This could adversely affect the financial sector in the event of a sharper exchange rate correction.

Financial Crisis Affects Real Economy Sectors

Financial Crisis Impairs Financing Conditions in Corporate Sector

Austria's Economy Stagnates

So far, Austria's underlying economic conditions have been characterized by exceptionally high levels of uncertainty in 2008. As a result of the turmoil on international financial markets, the global economic outlook has deteriorated substantially. The events of September and October 2008 markedly increased the uncertainties involved in forecasting the development of both the economy and financing conditions. Given the unique nature of the current crisis situation, however, there are no historical patterns on which to base estimates of its future effects.

As a result of slackening global economic activity, Austrian economic growth slowed down noticeably in the first half of 2008. The economic expansion observed in the previous three years came to an end in the second quarter of 2008. At the same time, the composition of Austrian economic growth changed in comparison to previous years, with exports no longer serving as the driving force of growth. The weakening of Austrian exports has mainly had a negative impact on value added in manufacturing. Investment growth also slowed, but in relative terms it remained fairly robust. Consumer spending continued to show a very moderate development due to high inflation.

Although the economy was clearly cooling off, businesses in Austria (as in the euro area as a whole) still recorded increasing profits in the first half of 2008 after pronounced growth in the previous years – despite the appreciation of the euro and climbing crude oil prices during the first six months of the reporting year.

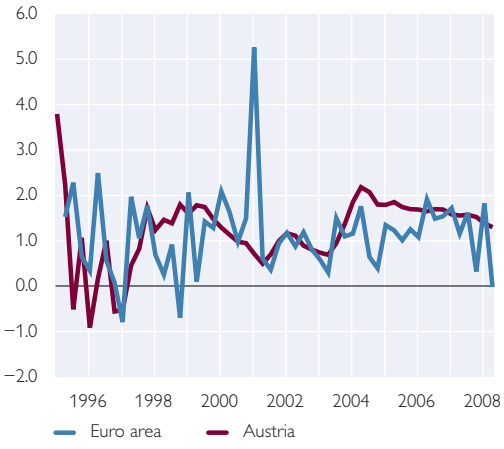
The development of corporate insolvencies – typically a lagging eco-

Chart 2

Indicators of Profitability Performance in the Corporate Sector

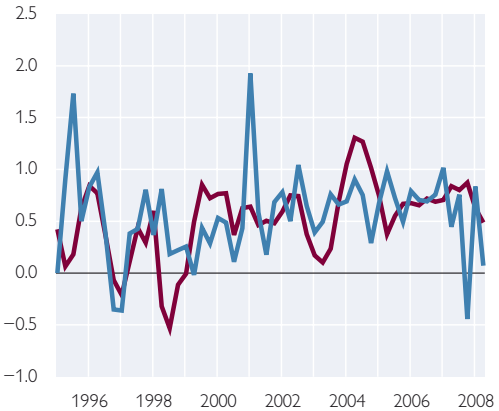
Gross Operating Surplus[1]

Quarter-on-quarter change in %, seasonally adjusted



Profit Margin[2]

Quarter-on-quarter change in %, seasonally adjusted



Source: Eurostat.

[1] *Including fixed income of the self-employed.*
[2] *GDP deflator less unit labor costs.*

nomic indicator – still reflects the economic boom of the previous two years, decreasing by 2.1% year on year in the first three quarters of 2008. In nominal terms, estimated default liabilities increased by 3.6% against the first three quarters of 2007. In relation to the corporate sector's total liabilities (based on national financial accounts data), default liabilities dropped from 0.59% to 0.51% in the first three quarters of 2008.

Capital Market-Based Financing Hit Hard by Crisis

Corporate finance in the form of equity issues has been hit especially hard by the global financial crisis, as the Viennese stock exchange's capacity for new issues decreased substantially due to the uncertainty triggered by plummeting stock prices. Since mid-2007, new issues on the Austrian stock market have decreased drastically, and a number of previously announced issues were canceled. In the period from January to September 2008, new issues (including capital increases and new listings) by nonfinancial corporations listed at Wiener Börse AG amounted to EUR 0.4 billion, down from EUR 7.0 billion in the corresponding period in 2007.

Despite its high volatility, financing through quoted shares had made a substantial contribution to corporate financing in the last two years: This instrument accounted for approximately 40% of the inflow of funds in 2006, and its contribution still amounted to 20% in 2007. In the first half of 2008, by contrast, this figure dropped to a mere 1.7%. In this way, the crisis has had quite measurable effects on corporate finance. However, equity issues are only relevant to a fairly small number of predominantly large companies.

As prices on Wiener Börse AG trended downward in the wake of the financial market turbulence, the market capitalization of nonfinancial corporations listed on Wiener Börse AG also decreased in the first nine months of 2008, dropping by some EUR 37 billion to EUR 64 billion, or approximately 23% of GDP. At the end of September 2008, the market capitalization of all issues listed on Wiener Börse AG (including financial corporations) came to 29% of Austria's GDP.

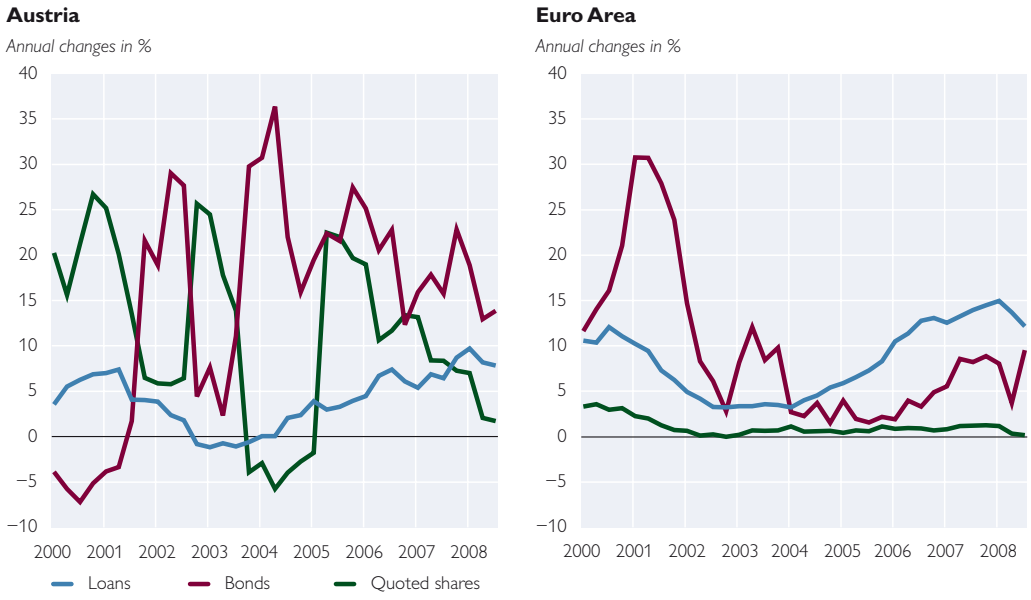
In the first half of 2008, nonfinancial corporations raised approximately one fourth of their external financing in the form of equity (including over-the-counter equities). As the rules applicable to national financial accounts require equity raised on the stock exchange is valued at current market prices in line with national financial accounting rules, declining stock prices drove down the share of equity in the corporate sector's overall liabilities by 2 percentage points (to 51%) between mid-2007 and mid-2008.

Bond financing continued to show relatively robust growth in the first nine months of 2008. According to the OeNB's securities issues statistics, the annual growth rate of corporate bond issues came to 13.9% at the end of September 2008. This growth rate has remained markedly higher than the overall euro area average. Fixed-rate bonds accounted for more than three quarters of the volume issued during that period. Nearly three-quarters of the bond volume issued were denominated in euro, while the rest was issued in Swiss francs.

Although capital markets have begun to play a more significant role in corporate financing in recent years, bank loans are still by far the most important source of external financing for Austrian companies. According to

Chart 3

Key Elements of External Corporate Finance



Source: OeNB.

national financial accounts data, bank loans accounted for 28.6% of external financing in the corporate sector at the end of the second quarter of 2008; this share is considerably larger than the contribution of quoted shares (20.7%) and bonds (7.6%).

The available data do not yet indicate a decrease in lending to companies. In September 2008, the annual growth rate of MFI loans to nonfinancial corporations in Austria came to 7.8%. In the first few months after the onset of the financial turmoil, credit growth even accelerated (from 6.9% in the second quarter of 2007 to 9.7% in the first quarter of 2008).

In part, this growth – which has remained quite dynamic – might be attributed to substitution effects; as conditions for raising capital through the stock market are tightening, companies have increasingly turned to bank loans. Moreover, sound earnings have enhanced the credit standing of many companies. However, the continued strength of internal financing suppressed demand for loans in the first three quarters of 2008, as shown by the Austrian results of the Eurosystem bank lending survey. In addition, companies have shown increasing uncertainty about their future investment projects. Subsequently, the financing of fixed investments, which had been among the key drivers of loan demand in the two previous years, contributed slightly to the decline in loan demand in the first three quarters of 2008.

These data do not yet reflect the events of September and October 2008, which clearly had an adverse effect on bank lending to the corporate sector. However, it is reasonable to assume that a financial crisis of this magnitude will slow growth in lending to the corporate sector as banks' lending practices change and companies' credit standing is reduced.

As for bank lending, the Eurosystem bank lending survey – which, since the beginning of the crisis, has also reg-

ularly included ad-hoc questions on the effects of the financial market turmoil on banks' refinancing and credit standards – indicates that refinancing conditions have deteriorated markedly due to the persistent turmoil on global financial markets. These less favorable refinancing conditions have had an impact on banks' margins, and recently their effect on the volume of bank lending has also increased. This development has had a stronger effect on lending to large companies than on SME financing.

Another transmission mechanism is the impact of the crisis on the value of assets which companies can use as collateral for loans. The current upheavals on the financial markets have primarily affected securities, which can be used as collateral for lombard loans. Like in the financial sector, the declining values of equity holdings, which in many cases constitute major corporate assets, may lead to income losses also for companies, as loan loss requirements increase. Austrian nonfinancial corporations held quoted shares valued at EUR 39 billion as at June 2008 according to national financial accounts data. From the third quarter of 2007 to the end of the second quarter of 2008, Austrian companies suffered an aggregate revaluation loss of EUR 4 billion from those equities.

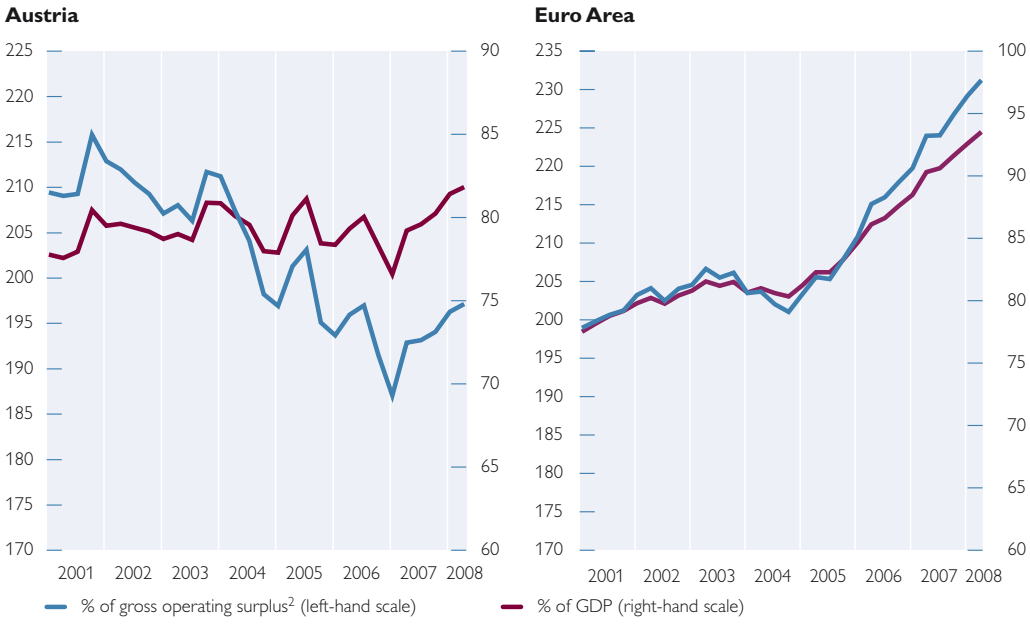
Finally, the cyclical effects of the financial crisis and the accompanying uncertainties are likely to lower companies' sales expectations which, in turn, will decrease their willingness to invest and thus also their demand for loans.

Corporate Debt Rising Faster

As enterprises increasingly rely on debt financing, the growth rate of corporate debt has accelerated noticeably since the second quarter of 2007. In the sec-

Chart 4

Corporate Sector Debt[1]



Source: ECB, OeNB.

[1] *Short-term and long-term loans, money market instruments and capital market securities.*
[2] *Including fixed income of the self-employed.*

ond quarter of 2008, the annual growth rate of corporate debt came to 8.5% (compared to 5.3% in the same period of 2007). In relation to earnings (gross operating surplus), corporate debt also trended upward but still remained clearly below the values observed during the last financial market turmoil at the beginning of the decade (see chart 4). In the second half of this decade, Austrian companies did not follow the euro area-wide trend of sharply increasing debt, and as a result corporate debt in Austria – relative to gross operating surplus and GDP – is now lower than the euro area average.

Financing Conditions Tightening due to Turbulence on Financial Markets

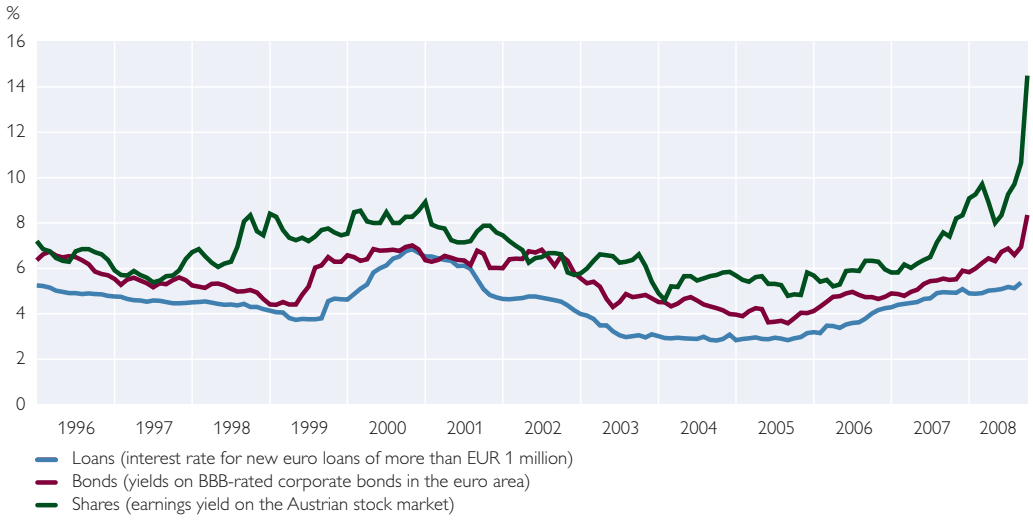
The interational financial turmoil has already had a clear impact on the financing conditions for Austrian companies – in equity and debt financing alike.

Stock prices on Wiener Börse AG have declined substantially since the onset of the global financial turbulence. Between the end of 2007 and November 13, 2008 (the cut-off date for this report), the Austrian Traded Index (ATX) fell by approximately 60%. However, as the profits of enterprises listed on Wiener Börse AG have continued to show a positive development, the earnings yield[1] has increased markedly since the turbulence began in mid-2007. This implies that the cost of raising capital on the stock market is going up. The earnings yield has also risen noticeably in relation to the development of government bond yields, which points to higher risk premiums on the stock market.

The yields of corporate bonds on the euro bond market rose by approximately 2 ½ percentage points in the first ten months of 2008.[2] The long-term yields of government bonds have

Chart 5

Corporate Financing Conditions



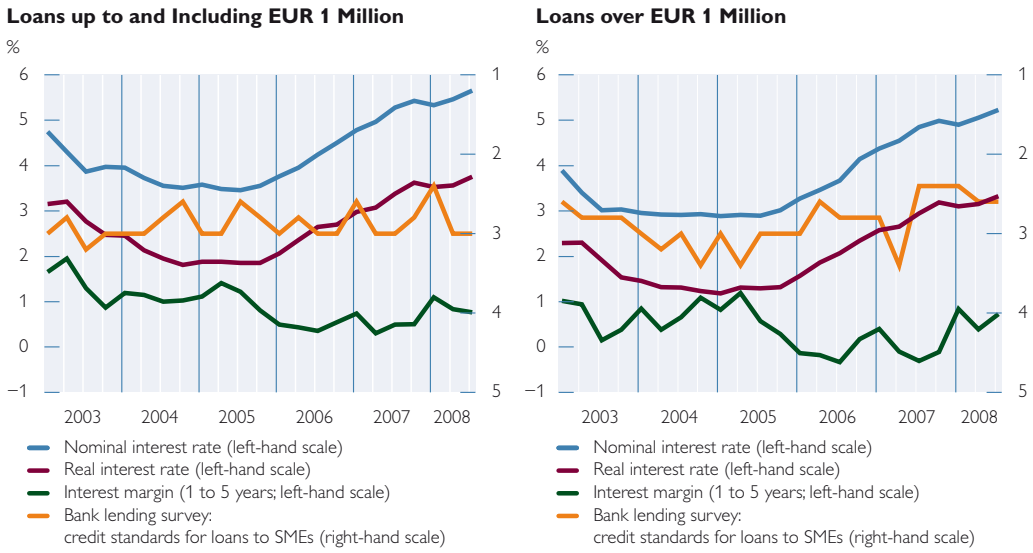
Source: OeNB, Thomson Financial, Wiener Bö 5frse AG.

[1] *The earnings yield is the inverse of the price/earnings ratio.*

[2] *This figure is based on the development of BBB-rated bonds in the euro area. Separate data series for Austria are not available.*

Chart 6

Conditions for Corporate Loans



Source: OeNB, ECB.

Note: Right-hand scale ranging from 1 (tightened considerably) to 5 (eased considerably).
Real interest rate: nominal interest rate less the OeNB's HICP forecast for the year following the forecast date.
Interest margin: interest charged for loans with a maturity of 1 to 5 years less 3-year swap rate.
Bank lending survey credit standards: changes in the credit standards for loans to enterprises over the last three months.

declined slightly since the beginning of the year, but at the same time – due to the increasing uncertainty arising from the financial market turmoil – the risk premiums on corporate bonds have risen sharply in relation to government bonds of similar maturity.

The conditions for taking out bank loans have also deteriorated as a result of the ongoing financial crisis. From the end of 2005 onward, interest rates on corporate loans already followed an upward trend prompted by the ECB's interest rate hikes. Due to the crisis of confidence on international financial markets, the gap between money market rates and policy rates has widened since mid-2007. As money market rates serve as the primary benchmark for variable rate loans, the interest rates on bank loans have increased accordingly.

In contrast, the interest margins on corporate loans changed only slightly in the first three quarters of 2008; this is clearly visible in the development of the spread between interest rates on corporate loans and the swap rate for the same maturity.

According to the Austrian results of the Eurosystem bank lending survey, Austrian banks have increased their margins for loans to the corporate sector since the third quarter of 2007. These increases have been far more pronounced for higher-risk borrowings than for borrowers of average credit standing. At the same time, the credit standards for corporate loans (i.e., loans to large corporations and SMEs) have been tightened. In this context, credit standards have been raised far more for long-term loans than for short-term loans. The global financial turmoil and its effects on financing conditions in the money and bond markets were a major factor behind these changes in credit standards.

Interest Expense on the Rise

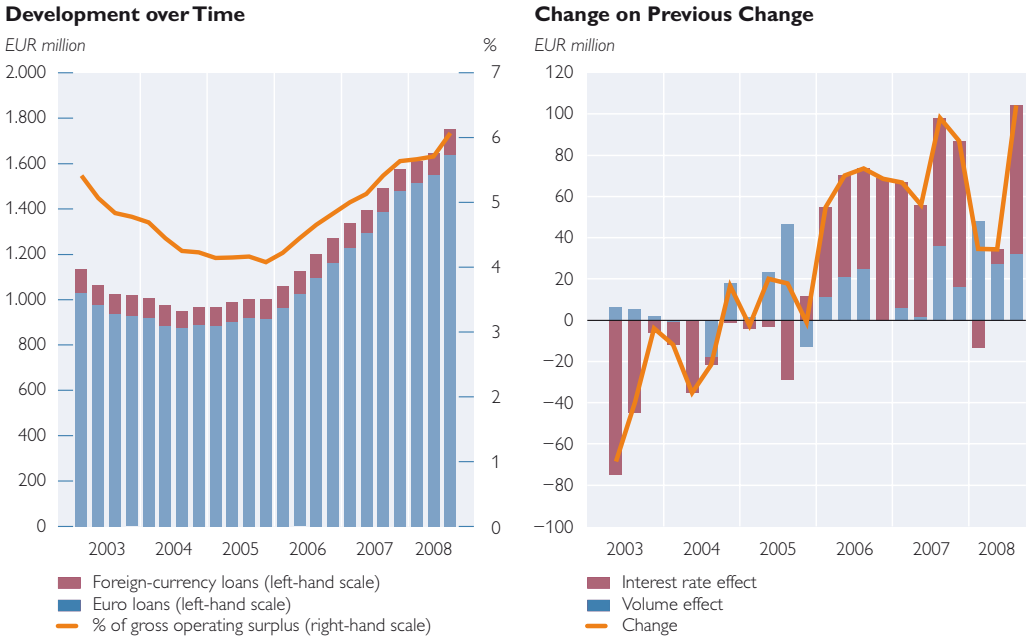
Interest expense in the corporate sector has risen rapidly since the beginning of 2006. This development can be attributed primarily to increasing interest rates but also to robust credit growth, which in the first two quarters of 2008 even accounted for a larger share in the widening of interest expense (chart 7).[3] In the third quarter, interest expense was approximately 80% above its five-year low. These increased rates can place a noticeable additional burden on heavily indebted companies with high interest expenses.

Corporate Sector Enjoyed Sound Risk Position at Start of Crisis

In recent years, the corporate sector has substantially reduced its exposure to a number of financial risks. On the liabilities side, the sector's exposure to interest rate risks decreased markedly until the middle of 2007, mainly due to the increasing importance of equity in corporate financing structures. Subsequently, the increasingly dynamic growth in loans brought about a slight increase in the share of interest-bearing liabilities in the total liabilities of the corporate sector.

Chart 7

Interest Expense on Corporate Loans



Source: OeNB, Eurostat.

Note: Interest expense on euro loans: loans to nonfinancial corporations according to MFI balance sheet statistics multiplied by the corresponding interest rates on outstanding amounts according to MFI interest rate statistics. Interest expense on foreign currency loans: loans to nonfinancial corporations according to MFI balance sheet statistics multiplied by the corresponding interest rates on loans on U.S. dollar, Japanese yen and Swiss franc loans to households and nonfinancial corporations according to MFI interest rate statistics.

[3] *The interest rates for new business (for both nonfinancial corporations and households) were used to calculate interest on foreign currency loans, as OeNB interest rate statistics do not provide any data on the outstanding volume of those loans. As a vast majority of foreign currency loans are based on periodically adjusted variable rates, this approximation should still be fairly accurate. Please note that these calculations only include interest payments proper (no noninterest rate charges).*

Chart 8

Risk Exposure of the Corporate Sector

Source: OeNB.

In recent years, the corporate sector has also substantially reduced its exposure to exchange-rate risk in corporate financing. On the whole, the sector continued to decrease its exposure to foreign currency loans, which only accounted for 8.4% of loans to companies as of mid-2008 (down from 8.9% in 2007). The share of corporate bonds issued in foreign currencies also dropped by approximately 3 percentage points to about 15% between mid-2007 and mid-2008. In the second quarter of 2008, foreign currency-denominated liabilities accounted for only 3.1% of the corporate sector's total liabilities, down from 3.3% in 2007.

On the assets side, companies have decreased their exposure to interest rate risks substantially. In contrast, the risks arising from stock price fluctuations in companies' financial assets played a far more significant role until the second quarter of 2007, after which those risks began to decline. This development not only reflects the transactions conducted by companies, but mainly stems from fluctuations in stock prices, which had a noticeable effect on the market value of equities held by the corporate sector.

Overall, in mid-2008 – approximately one year after the onset of the international financial turbulence – the Austrian corporate sector was in quite a favorable risk position.

Conclusion: Financial Crisis Also Affects Corporate Finance

The financial crisis has clearly had a negative impact on the corporate sector's ability to obtain external financing. Up to now, this has mainly affected enterprises' ability to raise funds through the capital market, whereas loans remained a stable form of financing for the corporate sector at least until the summer of 2008. Up to that

point, therefore, it seemed advantageous that Austria's corporate sector still relied more heavily on bank loans than on capital market-based financing – despite the rising significance of the latter in recent years.

However, in the third quarter of 2008, an increasing number of signs indicated that credit standards might worsen for the corporate sector as well. The uncertainties on global financial markets have increasingly reduced banks' willingness and ability to lend. This is likely to become more and more visible in lending developments if companies cannot resort to alternative forms of financing (especially internal financing) as much as they have in the past and if their credit standing deteriorates at the same time. Given the sharper differentiation of risk which has characterized bank lending for several quarters (especially in the case of large-volume, high-risk lending), this tendency could increasingly spread to other borrower groups.

Moreover, the financial market turbulence has affected corporate finance by way of driving up financing costs, which very quickly translated into higher interest expense in the corporate sector due to the large share of variable rate loans as well as continuously high credit growth.

Unlike in 2006 and 2007, the development of economic activity will no longer provide a cushion for the corporate sector's financial position. In the course of 2008, the Austrian economy has seen a significant slowdown, which indicates that 2009 will be a very difficult year in economic terms. This economic environment will also have a dampening effect on the corporate sector's earnings outlook.

In terms of business size, the tensions on the financial markets have affected larger companies more than smaller ones, as equity issues are primarily used by larger companies and banks' more cautious lending policies have also had a stronger effect on large companies than on SMEs.

However, the corporate sector as a whole is still in a strong position despite the deterioration in financing conditions. By mid-2008, corporate debt had only risen slightly in relation to earnings development, and at the same time companies' sound performance has enhanced their ability to service debt as well as their internal financing potential. Despite some deterioration in recent quarters, the corporate sector's exposure to financial risks has also decreased (with the exception of equity price risk) compared to the beginning of the decade.

Household Sector Takes Large Revaluation Losses on Capital Market-Linked Financial Assets[4]

Spending Weak, Savings Rate Climbing

High GDP growth substantially improved the situation on Austria's labor market, and as a result the rate of unemployment (Eurostat definition) dropped to 3.4% in 2008. However, consumer spending showed very moderate development in the first half of 2008, with real growth amounting to only 1.0%. On the one hand, this can be attributed to increased pressure on household income due to high inflation; inflation, in turn, clearly had an adverse effect on real disposable income, which only rose by 1.4% compared to the previous year. On the other hand, this development also reveals a strong

[4] *This sector also includes nonprofit institutions serving households (e.g. trade unions, churches, foundations) and self-employed persons.*

trend toward savings, which points to increasing uncertainty. The savings rate rose from 11.3% in 2007 to 12.8% in 2008.

Financial Market Turbulence Leads to Portfolio Shifts

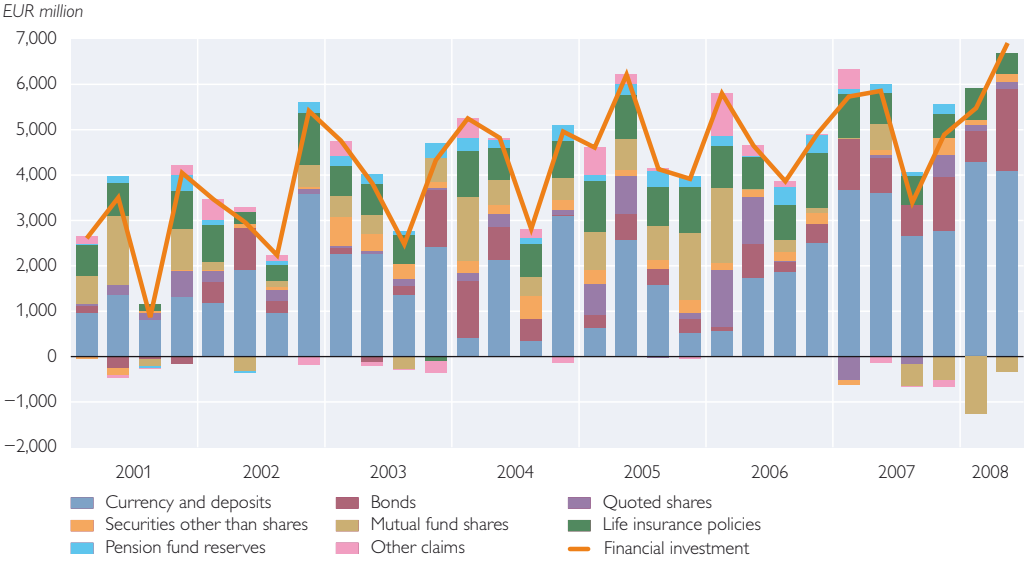
On the whole, the international financial crisis has only had a slight effect on the level of financial investment. In the four quarters following the onset of the financial turmoil (i.e. from the third quarter of 2007 to the second quarter of 2008), financial investment amounted to EUR 20.7 billion, up from EUR 20.4 billion in the four preceding quarters.

However, considerable shifts can be identified in the structure of these investments. Austrian households have shifted new investments away from equities and into deposits. This substantial increase in new deposits, which had already begun in the first half of 2007 and probably resulted from higher interest rates and increased stock market volatility, continued – and even intensified – in the first half of 2008. According to national financial accounts data, new deposit business between the third quarter of 2007 and the second quarter of 2008 was 18.6% higher than in the previous four quarters. According to OeNB banking statistics, new time deposits showed above-average growth from the start of the financial crisis in the third quarter of 2007 until June 2008; at the same time, savings deposits saw only below-average growth, and demand deposits even decreased in net terms. During the same period, financial investments in capital market instruments (stocks, bonds and mutual fund shares) dropped by 17.6%. The household sector reduced its investments in mutual fund shares by about EUR 2.7 billion (chart 9).

Investments in life insurance policies and pension funds have dropped fairly sharply. In the four quarters after the start of the financial crisis, new life insurance policies decreased by 36%, and new pension fund investments by a full 45% compared to the four quarters preceding the crisis.

Chart 9

Financial Investment



Source: OeNB.

Thus, in the second quarter of 2008 the structure of financial investment was as follows: Deposits accounted for the largest share of financial investment at 59.3%, followed by capital market instruments (stocks, bonds and mutual fund shares) at 25.7% and life insurance policies at 6.7%. Pension fund investments accounted for 3.9% of financial investment.

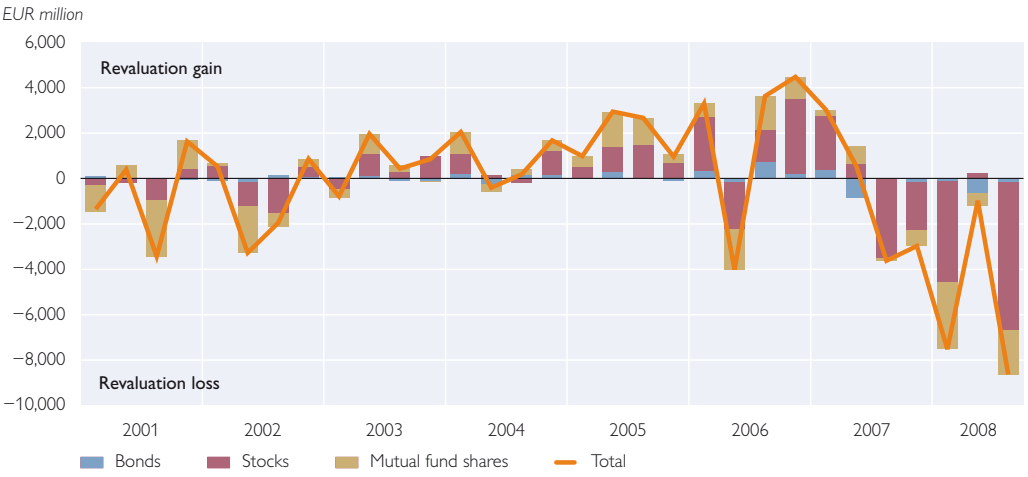
Large Revaluation Losses in Financial Assets

Whereas the revaluation gains on households' financial assets exceeded revaluation losses by a substantial margin prior to the financial crisis, the situation has changed since the third quarter of 2007. From the onset of the financial market turmoil in the summer of 2007 until the second quarter of 2008, households' securities portfolios (stocks, bonds and mutual fund shares) suffered price losses amounting to EUR 23.7 billion, or 19.5% of the amount which had been invested in those instruments by mid-2007. These losses were especially severe in the case of directly held quoted shares, where revaluation losses came to 47.8%.[5] The prices of real estate stocks in particular plummeted between 2007 and 2008. Whereas real estate stocks accounted for nearly 30% of the equity portfolio of Austria's private investors at the end of March 2007, this proportion had dropped to approximately 20% (about EUR 3.3 billion) by the end of January 2008.[6]

In the case of mutual fund shares, revaluation losses came to 12.2%. The bond portfolio held by households has also seen minor price losses since mid-2007 (–3.2%), which essentially reflect the increased risk premiums on corporate bonds.[7]

Chart 10

Revaluation Gains and Losses in Households' Financial Assets



Source: OeNB.

[5] *These investments accounted for 3.64% of the overall assets held by households.*

[6] *See Sedlacek, G. 2008. Die Entwicklung von Immobilienaktien im Aktienportefeuille österreichischer privater Haushalte von 1999 bis 2007. In: Statistiken Q2/08. OeNB. 48–52.*

[7] *Based on households' total assets, revaluation losses came to 1.41% for mutual fund shares and 0.26% for bonds.*

Exposure to Price Risks Declines Slightly

In the years leading up to the financial crisis, the share of capital market instruments in households' overall financial assets grew substantially. In the second quarter of 2008, nearly one-fourth of these financial assets were exposed to price risks, compared to approximately 20% five years earlier. One of the main drivers behind the rise in capital market exposure in the Austrian household sector was the increased significance of funded pension schemes in Austria. As at mid-2008, 3.5% of households' financial assets were invested in pension funds. Severance funds and state-subsidized retirement savings plans only accounted for a small share of households' financial assets in 2007 (0.4% and 0.6%, respectively).

From mid-2007 to mid-2008, however, the share of capital market instruments in households' financial assets dropped by 3 percentage points – a development which can be attributed to portfolio shifts as well as price losses. At the end of the first half of 2008, 19.9% of households' financial assets were exposed to valuation risks due to interest rate fluctuations, while 8.8% were exposed to these risks due to fluctuations in stock prices. This development was mirrored in the decreasing share of interest rate risk in household investments. By mid-2008, some 40% of households' financial assets were exposed to short-term interest rate risk (initial rate fixation period of up to one year) and 25% were subject to long-term interest rate risk. Compared to mid-2007, this constitutes an increase of 2.7 percentage points in the share of financial assets exposed to short-term and long-term interest rate risk.

Negative Performance of Funded Pension Savings

The plummeting stock market prices clearly had an adverse effect on funded pension instruments. According to the Oesterreichische Kontrollbank, the overall performance of pension funds came to –9.33% between the start of the financial crisis in the third quarter of 2007 and September 2008. For retirees already drawing supplementary pensions from such funds (58,471 retirees in 2007), this led to a reduction of current pension payments. These developments have not had immediate effects on prospective beneficiaries (484,359 persons in 2007), but effects on the future amount of their pensions are fairly probable depending on the time remaining until retirement.

The performance of severance funds (2.7 million prospective beneficiaries in 2007) is also expected to decline. In 2007, the performance of those funds was already very low, with values ranging from 0.2% to 3.1%. In this case, a legal capital guarantee ensures that at least the capital paid in remains secured.

The financial crisis is likely to have particularly strong effects on subsidized personal pension schemes (for which some 1.2 million contracts had been concluded by June 2008), as their share of equities is especially large and also concentrated in small capital markets which have been hit especially hard by the crisis. At least 40% of the assets in these pension plans must be invested in stocks quoted on stock exchanges in the European Economic Area (EEA) with a maximum market capitalization of 40%. However, a legal capital guarantee applies to these investments as well.

Life insurance policies and mutual funds are also used for the purpose of private pension provision. Life insur-

ance policies provide for a guaranteed interest rate, which is currently 2.25%. However, shares in profits beyond that level have probably been reduced substantially by the decline in stock prices.

Lending Rates Go Up

According to the Eurosystem bank lending survey, banks' credit standards for housing loans and consumer loans to households have tightened somewhat this year. The interest margins on loans to households – both for house purchase and consumption – were raised in the first three quarters of 2008 for average-risk and higher-risk loans alike.

In the first half of the year, nominal interest rates rose to 5.34% for housing loans (up 0.50 percentage points from September 2007) and to 7.09% for consumer loans (up 0.67 percentage points from September 2007). These increases can largely be attributed to the rise in interbank lending rates due to the shortage of liquidity on the money market.

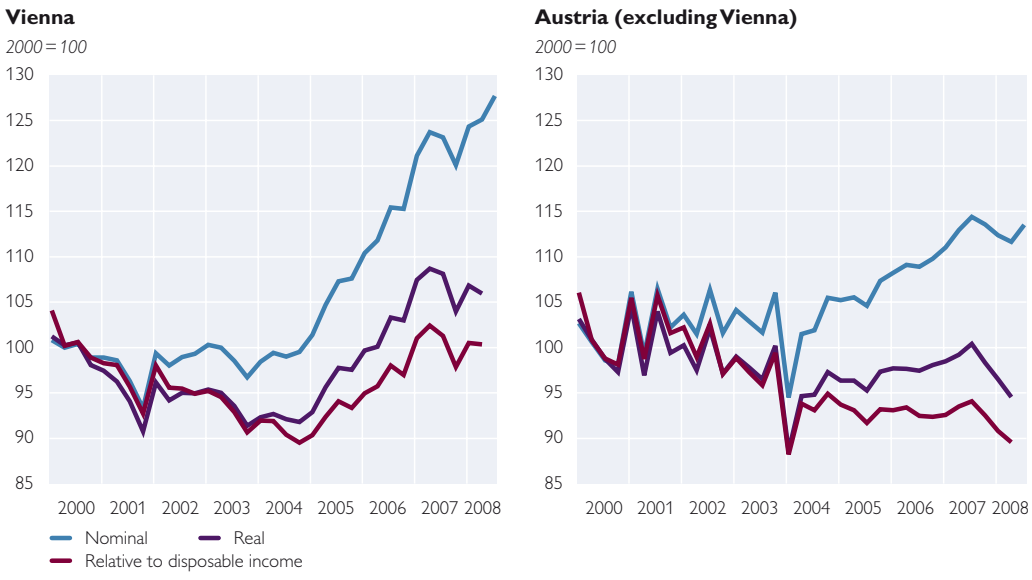
Real Estate Prices Continue to Climb

After a long period of stagnation, house prices in Austria began to rise approximately three years ago. This development was especially pronounced in Vienna, where the prices of single-family houses and building lots in particular saw substantial growth. In total, the real estate price index for Vienna rose by approximately 23% in nominal terms from the beginning of 2005 to the second quarter of 2008. Adjusted for inflation, the increase over that period came to about 14%. In relation to disposable income, real estate prices have risen back up to the level attained in 2000 (chart 11, left-hand panel). In real terms, real estate prices have changed only little over the last three years.

The development of real estate prices has a strong influence on consumer and investment decisions as well as on household debt, as real estate properties are often held as assets and as collateral for loans.

Chart 11

Real Estate Price Index

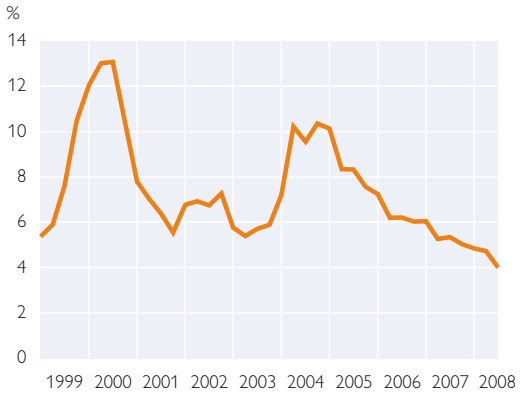


Source: OeNB, Statistics Austria, Vienna University of Technology.

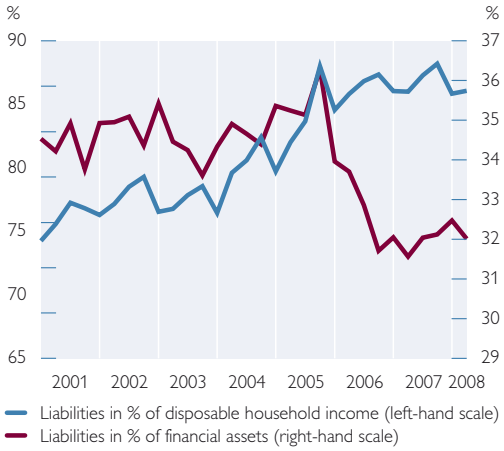
Chart 12

MFI Loans to Households

Year-on-year Change



Liabilities Relative to Financial Assets and Disposable Household Income



Source: OeNB.

New Borrowing on the Decline

The growth of new loans to households has declined steadily since 2005, falling to 3,8% in September 2008. This means that credit growth has been below average, slower than the level of GDP, long-term interest rates and inflation would allow in a state of economic equilibrium.[8] This decline has been observed in housing loans as well as consumer loans. However, these data do not yet reflect the deterioration of banks' refinancing conditions of October 2008, which has also had a decidedly negative effect on bank lending.

According to Austria's national financial accounts, the overall liabilities of households (mainly borrowed funds) came to 32% of their financial assets, or 86% of their disposable income, in mid-2008. In relation to financial assets as well as disposable income, debt has remained stable since the second half of 2007. At 53.4% of GDP, Austrian household debt was also rather low by international comparison at the end of 2007, as the corresponding figure for the euro area as a whole came to 59.1%.

Interest Expense Rising Further

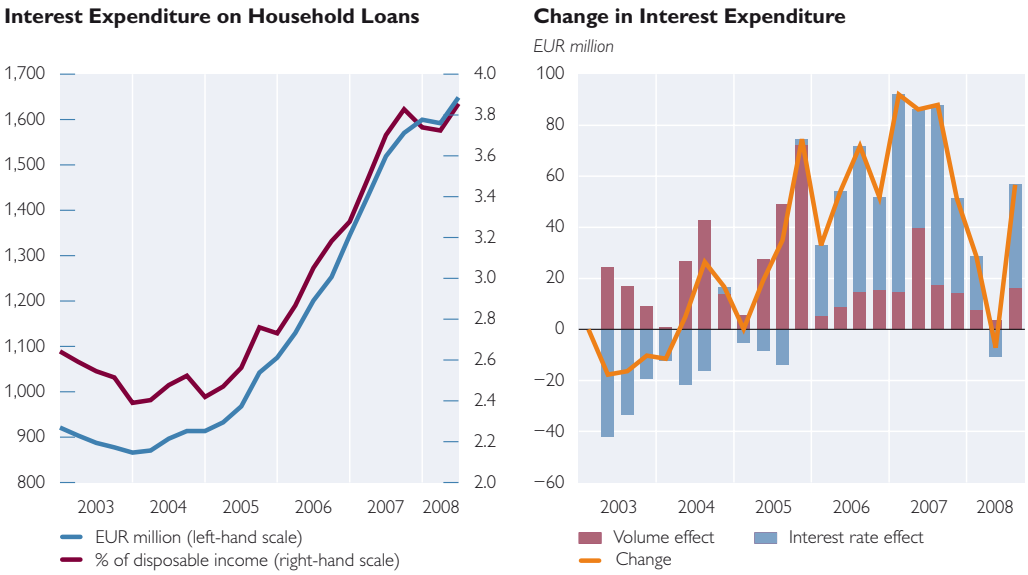
The share of variable rate euro-denominated loans in total new lending to households dropped to 54% in the second half of 2008 (compared to 62% in the fourth quarter of 2007), but this percentage is still relatively high. Foreign currency loans usually have floating interest rates. In light of the large share of variable rate loans, changes in market rates pass through to retail rates relatively quickly.

After briefly coming to a standstill in the first half of 2008, the rise in interest expense on personal loans observed since the start of 2004 resumed in the third quarter of 2008. At the end of that quarter, interest expense on personal loans came to 3.9% of disposable household income, up 0.2 percentage points from the previous quarter. This rise can be attributed to the sharp increase in lending rates.

[8] *For more information, please refer to the contribution by Friedrich Fritzer and Lukas Reiss, „An Analysis of Credit to the Household Sector in Austria" in this publication.*

Chart 13

Interest Expense on Household Loans



Source: OeNB.

Higher interest expenses were also offset by increases in households' interest income, which went up by 24% year on year in the third quarter of 2008. Approximately 84% of this increase can be attributed to a rise in interest rates, while the remaining 16% can be put down to the deposit growth. These figures do not include interest income from fixed-income securities (held directly as well as indirectly via mutual fund shares, life insurance policies, etc.). On balance, the household sector will probably continue to see positive net interest income thanks to its position as a net creditor.

Foreign Currency Loans Hit Hard by Crisis

The ongoing financial crisis has also had a massive impact on foreign currency loans to households. In the third quarter of 2008, the share of foreign currency loans in domestic loans to households came to about 30%, up 2.5 percentage points compared to the end of 2007. This increase was essentially driven by exchange rate movements. The Swiss franc accounted for approximately 95% of the volume of foreign currency loans to households, while the Japanese yen accounted for 4%.

The financial market turbulence affected the risks associated with foreign currency loans in two ways. First, the exchange rate risk associated with these loans materialized this year: The appreciation of the Swiss franc brought about (unrealized) revaluation losses totaling more than 5.6% of the volume of foreign currency loans in the first quarter of 2008. In the second quarter, households did see revaluation gains of about 2.8%, but these were followed by further revaluation losses of approximately 1.6% in the third quarter of 2008.

Second, the crisis has affected the funds invested in repayment vehicles used to redeem foreign currency loans. Depending on the share of equities involved, the life insurance policies and mutual fund shares used as repayment vehicles showed negative performance due to the decline in stock prices. An-

other determinant is the annual rate of appreciation assumed for the repayment vehicle upon conclusion of the foreign currency loan contract. The higher this factor is, the higher the probability is that the earnings achieved over the last few years will no suffice to offset recent losses.

By mid-2008, some two-thirds of foreign currency loans (in terms of loan volume) were backed with repayment vehicles. Even though most foreign currency loans involve long maturities (by mid-2008, 80% of foreign currency loans linked to repayment vehicles had a residual term of 10 years or more, and approximately one-third had even more than 20 years time to maturity), this development also had immediate effects because in many cases the shortfall in coverage due to price losses often required supplementary payments, higher monthly payments or an extension of maturities.

Box 1

Eurosystem Survey on Household Finance and Consumption (HFCS)[1]

In the coming years, the Eurosystem plans to carry out a broad-based survey on the finances and expenditure of households at regular intervals (at least every three years). The project is to be carried out decentrally, and partly in cooperation with national statistical institutes.

This type of data has not been available in the past, meaning that economic researchers have had to rely on macroeconomic data (national financial accounts) and/or national surveys with limited focus areas (EU-SILC,[2] consumer surveys).

Along with the U.S. Survey of Consumer Finance, the HFCS will be one of the few surveys worldwide to offer information on household income, expenditure, assets and debt from a single source. This will make it possible to answer a large number of important research questions. The results will be important from the central banks' perspective on financial stability in particular. Examples of questions where the survey will prove useful:

- *What risks are associated with the sharp rise in household debt? Countries in the euro area exhibit vast differences in this respect. Harmonized data will enable an international comparison which will reveal the determinants and consequences of debt as well as the influence of relevant institutions in this area.*
- *How do wealth effects influence consumption? In any case, households react more strongly to capital losses than to capital gains. The wealth effects of real estate are even stronger than those of financial assets. However, wealth effects also vary considerably across household categories, which implies that there are different transmission channels.*

The OeNB plans to conduct the Austrian part of the survey in the fall of 2009 in close cooperation with the Deutsche Bundesbank. An overview of the challenges involved in wealth research in the euro area by Pirmin Fessler, Peter Mooslechner and Martin Schürz will be published in the OeNB's Statistiken Q4/08.

[1] *HFCS: Household Finance and Consumption Survey.*

[2] *SILC: Statistics on Income and Living Conditions.*

Conclusion: Households' Risk Position Has Worsened in 2008

As a result of the financial crisis, the position of households has deteriorated markedly since mid-2007. On the assets side, declining stock prices have generated large revaluation losses in households' financial assets, which has also had a negative impact on funded pension schemes and on the repayment vehicles used to repay (mainly foreign currency-denominated) bullet loans. Households have responded by shifting their portfolios from capital market in-

struments to deposits. However, short-term shifts are more difficult in the case of retirement savings and repayment vehicles for foreign currency loans.

On the liabilities side, the financial market turmoil has led to a slight tightening of credit standards. Even if new household debt is fairly low by international comparison, it still exhibits several risk characteristics, including a large share of variable rate loans, which can quickly translate into higher interest expense, and a high level of foreign exchange risk (aside from the risks associated with repayment vehicles used to redeem foreign currency loans).

Finally, the economic slowdown will probably weaken households' income growth, and the savings rate will continue to rise as a result of higher uncertainty.

Continued Financial Turmoil Clouds Outlook for Austrian Financial Intermediaries

The analysis is largely based on data reported by Austrian financial intermediaries for the first six months of 2008, which means that their structural and risk indicators for that period still reflect the booming business of the past few years. The deepening of the financial turmoil has, however, since led to a marked deterioration of business conditions in financial markets. In this context, we have made an effort to infer likely future scenarios from the data available up to the end of June 2008. Unfortunately, we will not be able to offer firmer conclusions about the impact of the financial turbulence on the Austrian financial market until the data for the second half of 2008 have become available.

In general, the situation of the Austrian banks has remained stable. Their direct exposure to the crisis in the subprime market has been comparatively limited, but the indirect effects of the crisis, especially its repercussions on the economies of Central, Eastern and Southeastern Europe (CESEE), will be more sub-stantial.

Profits of Austrian Banks Shrinking but Still Robust

Solid Asset Growth despite Financial Turmoil

In the first six months of 2008, Austrian banks' unconsolidated total assets continued to rise sharply despite the turbulence in international financial markets: With annual growth of approximately 13.1%, a rate last achieved in 1985, total assets increased to EUR 972.2 billion. As in the previous periods, banks basically benefited from steady growth in their cross-border operations. The five largest Austrian banks[1] accounted for 43.8% of total assets in mid-2008, which represents a slight increase compared with end-2007. At sector level, the two networks of credit cooperatives (Volksbank and Raiffeisen banks) reported the highest annual growth rates (25.4% and 20.9%, respectively). The growth rates of the other sectors were below average, with building and loan associations as well as savings banks reporting the lowest figures. In terms of market shares (based on unconsolidated assets), the joint stock bank sector accounted for the largest market share (close to 28%), followed by the Raiffeisen sector (25.7%) and the savings bank sector (16.0%).

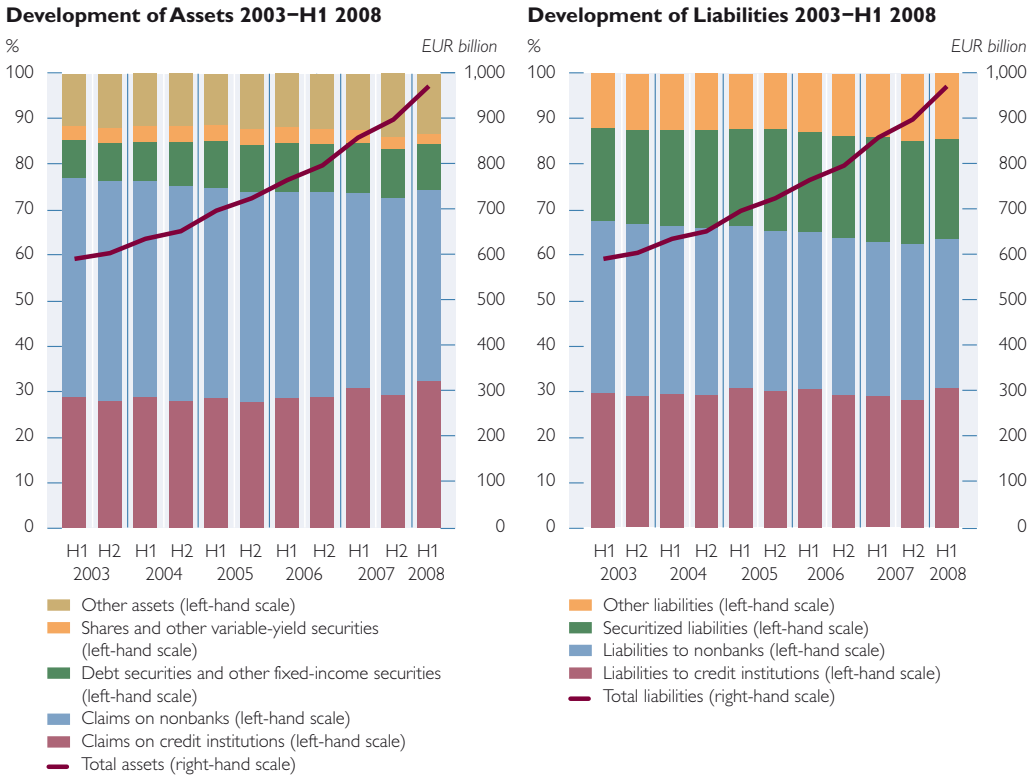
Continued expansion in cross-border business boosted external assets by 14.6% to over EUR 390 billion. This growth was mainly driven by cross-border claims on nonbanks, which jumped 25.2% year on year. The share of cross-border lending thus rose from 39.0% (end-2007) to 40.1% (mid-2008) of banks' assets. On the liabilities side, the external share inched up from 30.4% to 30.6%, reflecting among other things strong growth in foreign liabilities against credit institutions (+18.5% year on year).

The domestic business of Austrian banks also continued to grow in the first half of 2008. For instance, claims on domestic nonbanks rose by 5.5% to

[1] *UniCredit Bank Austria (BA), Erste Bank der oesterreichischen Sparkassen (Erste Bank), Raiffeisen Zentralbank (RZB), Bank für Arbeit und Wirtschaft und Österreichische Postsparkasse (BAWAG P.S.K.) and Österreichische Volksbanken-Aktiengesellschaft (ÖVAG).*

Chart 14

Balance Sheet Structure of the Austrian Banking Sector (unconsolidated)



Source: OeNB.

EUR 296.5 billion, compared with an annual growth rate of 2.4% in the first half of 2007. On the liabilities side, the volume of domestic deposits jumped 10.3% to EUR 266.3 billion, a development that reflects, among other things, the continued uncertainty in financial markets. The key driver behind this increase was a 49.3% surge in fixed-term deposits,[2] whereas sight deposits and savings deposits expanded only moderately (3.1% and 5.0%, respectively). Given the high volatility prevailing in financial markets, this development underlines the confidence depositors place in the Austrian banking system. The strong growth in fixed-term deposits also reveals a change in the saving behavior of Austrians, as demand for online saving instruments and traditional saving accounts is rising.

The volume of direct domestic issues to nonbanks expanded by 18.0%, thus growing above average year on year but at a slower rate than in previous periods. One-third of this increase can be attributed to the issuance of debt securities, and two-thirds to the issuance of other securitized liabilities.

Amid the financial turmoil, banks have been gradually closing out special off-balance sheet transactions (derivatives positions) since the third quarter of 2007, causing the underlying nominal values to drop to around EUR 1,929 billion by end-June 2008. In the first half of 2008, year-on-year growth in derivatives transactions remained far

[2] *Fixed-term deposits refer to all deposits, other than securitized assets, taken in from nonbanks with an agreed maturity.*

below the first-half 2007 result (+40.2%) but was still positive (+4.8%). In terms of transaction types, the share of interest rate derivatives dropped to 78.5%, while that of foreign exchange derivatives inched up to 20.4%.

Consolidated total assets, which in addition to the domestic business mainly reflect the transactions of Austrian banks' CESEE subsidiaries, had increased by EUR 124.3 billion (12.0%) to EUR 1,161.7 billion by the end of June 2008. The five largest banks accounted for 63.3% of this amount.

In the first half of 2008, the number of Austrian banking offices dropped slightly – by 19 – to 5,137 outlets (874 head offices and 4,263 branches). At the same time, staff numbers increased by 2.6% year on year to 68,618 full-time equivalents. Including the staff of Austrian subsidiaries abroad, the overall headcount increased by 13.6% to 214,323 employees.[3]

Financial Market Developments Dampen Profits

As a result of the turbulence in international financial markets, banks operating in Austria, above all the larger ones, already began to see profits decline in the first half of 2008. Unconsolidated operating profits grew by EUR 2.9 billion in the first half of 2008, down EUR 0.4 billion or 11.2% compared to the same period last year. This decline in profit growth – the first since 2002 – is attributable to a decline in operating income by EUR 0.2 billion (1.8%) to EUR 8.4 billion, and to a rise in operating expenses by EUR 0.2 billion (4.0%) to EUR 5.5 billion. Consequently, the banks' unconsolidated cost-to-income ratio increased by 3.7 percentage points year on year to 65.8%; to some extent, this increase reflects the fact that the ratio was at a historically low level in 2007 due to particularly favorable macroeconomic and macrofinancial conditions. The decline in operating income in the first half of 2008 was strongest in the joint stock bank sector. In contrast, the Raiffeisen and Volksbank networks of cooperative banks even managed to raise their operating income. Unlike in the Raiffeisen sector, however, this increase did not translate into an improved cost-income ratio for the Volksbank sector due to an above-average surge in operating expenses.

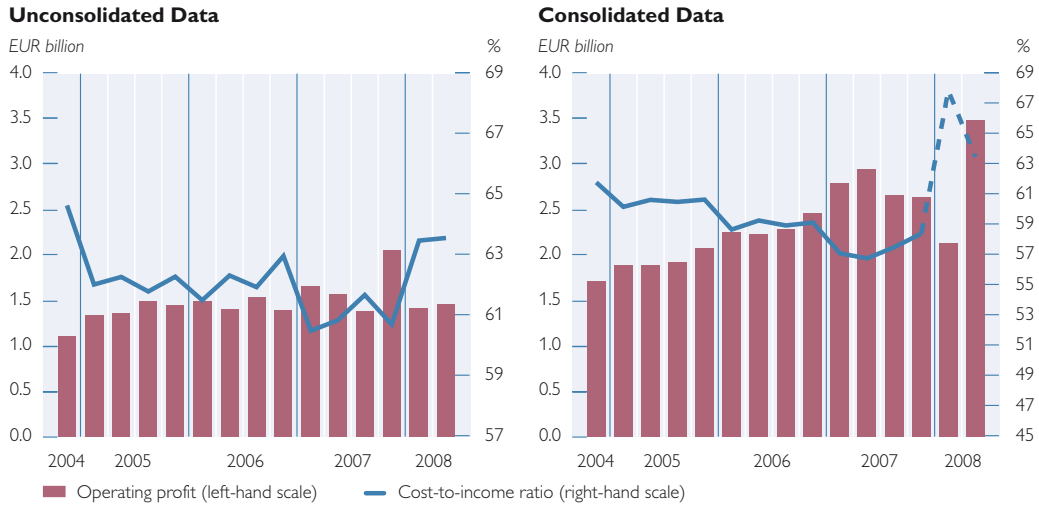
As a result of the financial turmoil, banks mainly suffered setbacks in fee-based income and a sharp drop in the net result of financial operations. In light of depressed demand for capital market products among nonbanks, the income generated by fee-based financial services – EUR 2.2 billion – remained EUR 0.3 billion or 12.0% below the result for the first half of 2007. Consequently, the share of operating income attributable to fee-based services dropped 3 percentage points to slightly below 25.8%. Given persistently unfavorable market conditions, the outlook for fee-based services remains difficult. The net result of financial operations was even negative for the first half of 2008 (–EUR 55.2 million).

In contrast, interest income continued to increase at a solid rate, climbing to almost EUR 4.0 billion in the first half of 2008; this represents an increase of 11.5% compared with the first half of 2007. Since the interest margin has remained virtually unchanged at its historically low level of 0.94% since

[3] *The development of staff numbers is based on reported headcounts and reflects both the organic growth of banks and staff additions through the acquisition of new entities.*

Chart 15

Comparison of Unconsolidated and Consolidated Operating Profit



Source: OeNB.

Note: The bars reflect the operating profit at the end of either the second or fourth quarter of each year (data are not cumulated). Due to changes in the financial reporting regime at the beginning of 2008, the consolidated cost-income ratio for 2008 and beyond is not comparable with pre-2008 data.

mid-2007, the gains in interest income were mainly volume-driven. Moreover, the stable interest margin indicates that banks were generally able to pass on higher interbank rates arising from tight liquidity conditions on the interbank market to their clients, at least in the first half of 2008. Yet keeping the interest margin from dropping lower still remains a challenge for banks, especially as the share of net interest income in total operating income[4] rebounded to approximately 47.5% in the first half of 2008 (from 41.8% in the first half of 2007).

Following particularly strong annual growth in previous quarters, income from equity investments rose by 6.0% to nearly EUR 1.5 billion up to the end of June 2008. At the same time, the corresponding share in total operating income rose to 17.5% (from 16.3% in the first half of 2007). Other operating income moved up by 9.1% to EUR 0.8 billion.

On the expenditure side, administrative expenses climbed EUR 0.3 billion (6.7%) to EUR 4.8 billion, with the increase in staff costs (+8.1%) markedly exceeding the rise in expenditure for goods and services (4.5%). The high growth in staff costs was, however, partly offset by one-off effects relating to the release of pension fund reserves. The share of administrative expenses in total expenses edged up compared with the corresponding period, namely to 86.3%. Administrative expenses other than staff costs or expenditure for goods and services dropped considerably by 15.1%, yet given their small share – 8.4% – in total operating expenditure, this decline had only a minor impact on the overall result.

[4] *It should be noted that the negative net result of financial operations has resulted in a slight upward bias in the other components of overall operating income.*

Strong Cross-Border Business Prevented Sharper Decline in Profits[5]

Consolidated operating profits for the first half of 2008,[6] which also include the activities of the Austrian banking sector in the CESEE region, dropped by EUR 0.1 billion (2.2%) to EUR 5.6 billion compared with the first half of 2007. In other words, cross-border transactions largely offset the decline in domestic profits. However, while consolidated operating profits jumped 20.7% year on year, operating expenses[7] surged by 36.8%. The consolidated cost-income ratio had thus risen to 66.6% by the end of the second quarter of 2008. Adjusted for taxes and minority interests, the consolidated end-of-period result showed a year-on-year decrease of EUR 0.2 billion (6.8%) to EUR 3.3 billion.

Box 2

Chronicle of the Global Financial Turmoil and Its Repercussions on Austria's Financial Market

Global financial markets have been in the throes of financial turmoil since the summer of 2007. In early September 2008, the continued downturn in the U.S. real estate market sparked renewed speculation among financial market participants as to whether the two finance giants operating in the U.S. secondary mortgage market – Fannie Mae (Federal National Mortgage Association) and Freddie Mac (Federal Home Loan and Mortgage Corporation), both chartered by Congress but privately run companies – were indeed adequately capitalized. Given the high relevance of Fannie Mae and Freddie Mac for the stability of international financial markets and for the U.S. real estate market, the U.S. government placed them under conservatorship and took sweeping measures, including the provision of explicit government guarantees for their liabilities.

In mid-September 2008, the market showed fresh signs of anxiety after Lehman Brothers, the fourth-largest U.S. investment bank, filed for chapter 11 bankruptcy protection. The insolvency of Lehman Brothers raised uncertainty in international markets considerably, as the company had been a major counterparty in the credit derivatives and swap market. The U.S. investment bank Merrill Lynch, Wall Street's third-largest bank, also suffered from the impaired functioning of the money market and from soaring write-downs, but was ultimately rescued through a takeover by Bank of America. The two remaining U.S. investment banks, Goldman Sachs and Morgan Stanley, finally, filed requests with the U.S. Federal Reserve to become bank holding companies, giving them above all improved access to the Fed's liquidity operations and allowing them to take deposits from investors.

The uncertainty was further heightened by reports that American International Group (AIG), one of the world's largest insurers, suffered a liquidity shortfall following the downgrade of its credit rating. Given its higher exposure to structured credit products, AIG was hit harder than other insurance companies. The Fed came to AIG's rescue with a loan in mid-September 2008, and subsequently revised and expanded the rescue package in early October and early November 2008.

By the end of September 2008, the liquidity problems had spread to a number of European credit institutions. Market participants raised doubts that the Belgian-Dutch financial group Fortis was adequately capitalized and had sufficiently liquidity. The governments of

[5] *The OeNB implemented the FINREP taxonomy for prudential reports at the beginning of 2008. Given this major structural break in the consolidated data series, historical changes need to be interpreted with caution.*

[6] *As banks use different accounting standards, aggregated consolidated data may convey a slightly distorted picture.*

[7] *Given the switch to International Financial Reporting Standards, comparability of the 2008 data on operating expenses with the data for 2007 is limited.*

Belgium, France and Luxembourg took swift action in support of Fortis and of the Belgian-French group Dexia. Next, Germany's Hypo Real Estate (HRE) bank encountered serious refinancing difficulties, but was rescued with the help of a credit line established by several other banks and guaranteed by the German government.

Up to mid-September 2008, troubled banks had mostly managed to improve their capital and liquidity base by selling off assets or raising capital. The demise of Lehman Brothers, the largest bankruptcy in U.S. history, marked the beginning of a new phase of financial turmoil. Stock prices plunged, credit risk premia soared, and conditions on the interbank market tightened even further. Increased concerns about counterparty creditworthiness and uncertainty about their own liquidity needs prompted banks to either hoard liquidity or lend funds only for very short terms and/or against collateral. In the unsecured money market, liquidity was scarce for maturities exceeding one week and even dried up completely for longer maturities.

Against this backdrop, central banks and governments responded with a number of measures to restore confidence and stability in the markets. On several occasions, the ECB and other central banks injected liquidity into the interbank market. Moreover, the swap lines established between the U.S. Fed and other central banks (including the ECB) were expanded, and new credit facilities were created or existing facilities were increased. In early October 2008, the world's major central banks cut key interest rates in a concerted action. The U.S. government announced a deal to rescue the U.S. financial system, which basically enables the U.S. Treasury to buy bad debt (residential and commercial mortgages as well as securities backed by those mortgages) from ailing banks and/or provide capital injections into the banking sector. In Europe, the heads of EU Member States endorsed a joint action plan to fight financial turbulence. This plan empowered governments to raise the savings guarantee for depositors, to provide fresh capital – secured by government guarantees – in order to recapitalize banks, and to underwrite certain bank obligations. At the same time, short-selling was banned at a number of stock exchanges, at least temporarily. These measures helped calm market fears to some extent.

In this context, Austrian policymakers also agreed on a comprehensive package to secure savings, strengthen banks and prevent disadvantages of competitiveness. The direct exposure of Austrian banks to the U.S. subprime crisis was comparatively limited given their deposit-based banking regime and their strong regional focus on the CESEE area. Yet as the turmoil spreads across Europe, the Austrian banking system is also faced with higher refinancing costs, declining trade and shrinking fee-based income, and a general increase in risk aversion among investors. The latter aspect is particularly relevant for Austria's exposure to CESEE as, following the financial meltdown in Iceland, countries in the region with large external imbalances now face greater scrutiny. At any rate, the Austrian Financial Market Authority FMA and the OeNB will continue to monitor developments in international financial markets closely and maintain close contact with their international counterparts as well as domestic banks and insurance companies.

Sustained Loan Growth Despite Difficult Environment[8]

Despite the crisis of confidence in international financial markets, which has also affected the refinancing conditions and credit standards in the Austrian banking sector, domestic credit institutions saw stable loan growth in the first half of 2008. While lending standards for both businesses and households were tightened, loan demand from businesses remained stable and that from households even edged up.[9]

[8] *The analysis of loan growth is based on the unconsolidated asset statement in the prudential statistics.*

[9] *Data on banks' lending policies are based on the bank lending survey of July 2008. The bank lending survey is conducted four times a year among senior loan officers of a representative sample of euro area banks.*

Retail interest rates on new loans also reflected tighter lending standards and higher refinancing costs. In the first half of 2008, interest rates on both loans to households and to nonfinancial corporations increased slightly compared with end-2007.[10] Annual interest rates on consumer and housing loans rose from 6.56% to 7.14% and from 5.27% to 5.34% respectively. Interest rates on corporate loans up to EUR 1 million increased from 5.50% to 5.61%, and rates on loans over EUR 1 million climbed from 5.09% to 5.12%.

Between January and June 2008, lending to domestic customers[11] grew at a steady pace of more than 6% year on year, with lending to nonfinancial corporations expanding significantly more rapidly than lending to households (8.2% vs. 4.3%). The growth of loans to nonfinancial corporations was above average in the savings bank, Raiffeisen and state mortgage bank sectors, while household loans increased particularly strongly in the Volksbanken and building and loan association sectors. Joint stock banks, by contrast, posted significantly lower loan growth rates. Broken down by individual bank, growth rates differed substantially among the five largest Austrian banks. Aggregated over all banks, annual loan growth was below average at around 3.1%. The median annual growth of all Austrian banks' claims on domestic customers[11] came to 5.4%.

The current financial market turmoil will eventually feed through to domestic loan growth, but the Austrian tradition of close, long-term relations between banks and customers ("house bank principle") will help cushion the effects of adverse international developments also in economically difficult times.

Financial Market Developments Highlight Risks of Foreign Currency Loans[12]

The decline in borrowing in foreign currency seen in previous periods stopped – at least temporarily – in the first half of 2008. This trend interruption was not attributable to increased new borrowing but largely traceable to the impact of exchange rate developments. The appreciation of the Swiss franc since end-2007 has clearly highlighted the risk of foreign currency loans.

While the share of foreign currency-denominated claims on domestic customers in total claims had dropped from 17.3% in mid-2007 to 16.2% at end-2007, it increased yet again more recently (17.0% in mid-2008). The amount of foreign currency loans outstanding to customers (nonbanks) totaled EUR 50.2 billion in mid-2008.

A breakdown by economic sector reveals that the share of foreign currency lending to households remained broadly unchanged – at 29.0% – year on year, whereas the respective share of lending to nonfinancial corporations decreased from 8.9% to 8.4%. The shares of currencies in foreign currency lending altered only marginally. While the Swiss franc kept its role as the most important currency in foreign currency lending, accounting for an almost unchanged share of just below 89%, the

[10] *Comparison of average annualized agreed rates between December 2007 and August 2008, covering intrayear interest payments on deposits and loans, but no other charges that may apply.*

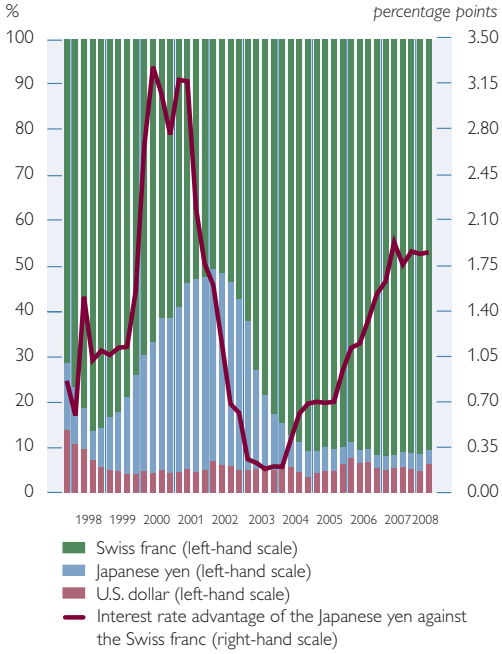
[11] *"Domestic customers" comprises the economic sectors "nonfinancial corporations," "households" and "nonprofit institutions serving households."*

[12] *All data on foreign currency loans are based on prudential reporting and deviate slightly from monetary statistics data. Excluding exchange rate effects.*

shares of the U.S. dollar and the Japanese yen edged up slightly to 6.1% and 3.3% respectively. The shares of all other currencies dropped below the 2% mark.

Chart 16

Foreign Currency Loans by Currency



Source: OeNB, Bloomberg (3-month interbank interest rates).

As at June 2008, 78.4% of foreign currency loans taken out by domestic households and nonfinancial corporations were bullet loans, 79.0% of which had been arranged with repayment vehicles. Bullet loans denominated in foreign currency were more common among households (84.8%, 87.6% of which with repayment vehicles) than among nonfinancial corporations (57.3%, 37.2% of which with repayment vehicles).[13] At the moment it is impossible to provide a reliable estimate of the losses sustained in connection with repayment vehicles during the current financial crisis. In fact, whether foreign currency borrowers have suffered losses depends very much on the type of repayment vehicle and on the residual maturity of their loan. The longer the period until repayment is due, the better are the chances that the repayment vehicle can make good on past losses. The available data show that since, at end-June 2008, around 95% of all foreign currency loans taken out by households and nonfinancial corporations in Austria had a residual maturity of more than 5 years and significantly more than 80% had a residual maturity of more than 10 years, the impact of the financial market turmoil will depend very much on the medium to long-term performance of the associated repayment vehicles.

The extremely high volatility seen in international capital markets recently has put into focus the danger of bullet loans arranged with repayment vehicles, which, in addition to other risks, are exposed to exchange rate risk.

Credit Quality in Terms of Risk Provisions Still Considered Good

The available data[14] on banks' credit risk provisions have not yet mirrored the gloomier economic outlook. The unconsolidated loan loss provision ratio[15] for the entire Austrian banking system continued its sharp downtrend, dropping by 0.35 percentage points to 2.33% between mid-2007 and mid-2008.

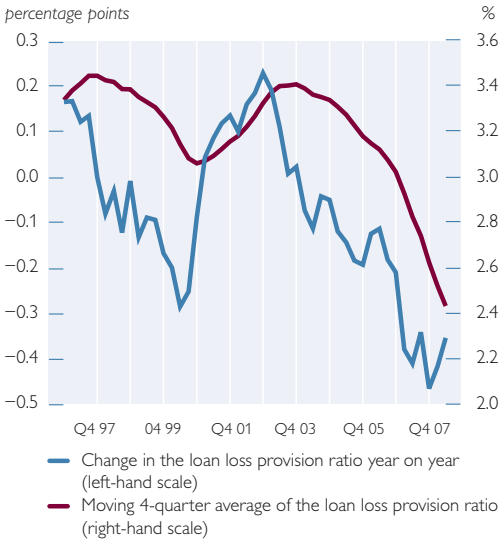
[13] *Only 27.3% of euro-denominated loans to domestic households and nonfinancial corporations in Austria were bullet loans; 10.6% of these loans had been arranged with repayment vehicles.*

[14] *As at mid-2008.*

[15] *Specific loan loss provisions for claims on nonbanks as a proportion of total outstanding claims on nonbanks. Claims in this context are defined as loans and unlisted debt securities.*

Chart 17

Unconsolidated Loan Loss Provision Ratio of Austrian Credit Institutions



Source: OeNB.

The acceleration of the decline in the loan loss provision ratio, which had been observed for almost four years, came to a halt during 2008 (blue line in chart 17). In view of the changed economic conditions and the low level that loan loss provisions have now reached, a trend reversal seems unavoidable. During the most recent downturn at the beginning of this decade, the time lag between when the first falling growth figures were recorded and when loan loss provision ratios started to pick up was about one and a half years. From a present perspective, it is difficult to predict the amount of additional loan loss provisions and the period over which these provisions will have to be made available. Under the assumption that the amount of outstanding claims remains unchanged, raising the current unconsolidated loan loss provision ratio to 3% – approximately the lowest level reached at the end of the last business cycle – would require additional loan loss provisions of EUR 2.8 billion; this amount almost equals Austrian credit institutions' total operating profits (on an unconsolidated basis) in the first half of 2008.

Available consolidated data confirm the trend of declining unconsolidated loan loss provision ratios seen over the past few years. In the aggregate of those groups which submit supervisory reports under IFRS,[16] the ratio of allowances to the total amount of loans and receivables decreased fairly steadily over the past five years, from 3.0% to 1.9% by mid-2008.[17] If the downtrend in the consolidated loan loss provision ratios reversed and half of the decline of the past five years would be made up for – i.e. if the consolidated ratio rose to 2.4% – additional loan loss provisions would come to EUR 3.9 billion.[18] This corresponds to almost 90% of the consolidated operating profits of IFRS reporters in the first half of 2008.

[16] *These groups' share in the consolidated total assets of the Austrian banking system was 82% in mid-2008.*

[17] *These figures cannot be compared with the unconsolidated loan loss provision ratios because, among other things, allowances for loans and receivables are not available for nonbanks separately and the consolidated ratios therefore refer to banks as well.*

[18] *Again assuming an unchanged amount of claims.*

Box 3

Prudential Procedures under Pillar 2

The EU directives central to banking supervision, 2006/48/EC and 2006/49/EC, implementing the framework of the New Basel Capital Accord (Basel II), do not only set out the methods for assessing regulatory minimum capital requirements (pillar 1) and disclosure requirements (pillar 3), but also place increased emphasis on risk management and integrated bank-wide management and control. This supervisory review process (pillar 2) comprises provisions that apply to both institutions under supervision (on the establishment of appropriate procedures and systems to ensure capital adequacy while taking account all material risks) and to supervisors (on assessing internal capital adequacy and the procedures applied). When designing and evaluating the processes under pillar 2, supervisors and credit institutions are to take due account of the type, scope and complexity of the banking transactions conducted (principle of dual proportionality).

The provisions under pillar 2 were transposed into Austrian law through Articles 39 (General due diligence obligations) and 39a (Internal capital adequacy assessment process) as well as Articles 69 para 2 and 3 (ongoing supervision) of the Austrian Banking Act. Articles 69, 70 and 79 para 4a of the Austrian Banking Act define the areas of responsibility of the Financial Market Authority FMA and the Oesterreichische Nationalbank (OeNB). The specific implementation of pillar 2 in Austria is based on international standards, including, in particular, the Core Principles of Banking Supervision issued by the Basel Committee on Banking Supervision and the Guidelines on the Application of the Supervisory Review Process under Pillar 2 provided by the Committee of European Banking Supervisors (CEBS).

Under the supervisory review process, national supervisors are required to conduct, on a standardized basis, assessments of measures, strategies, processes and mechanisms at individual bank level. Applying their own systems, supervisors are to provide an overall assessment of the risk situation (Risk Assessment System, RAS). The tools available to supervisors in fulfilling this task include on-site inspections and, in particular, the ongoing analysis and assessment of banks. Taking account of the principle of proportionality in terms of scope and depth, the OeNB's individual bank analysis, which covers all Austrian credit institutions, is a two-stage process, consisting of the elements basis analysis and detailed analysis. Furthermore, ongoing model supervision includes all measures pertaining to the use of models subject to approval requirements once they have been approved.

In the course of ongoing supervision, compliance with pillar 2 requirements is reviewed on an annual basis (again taking account of the principle of proportionality). This annual evaluation focuses on selected issues and relies on all sources of information available to the supervisory authority, including the bank auditor's report for the purpose of initial assessment. In addition, detailed information is collected by drawing samples in the course of full evaluations and on-site inspections. Once again taking account of the principle of proportionality, these evaluations are carried out in a way consistent with a credit institution's systemic relevance and the type, scope and risk level of its transactions. Intense interaction between banks and supervisors (structured dialogue) is considered to be of particular importance in this context.

The reform of banking supervision in Austria, which took effect in January 2008, provided for the FMA and the OeNB cooperating closely and coordinating processes and procedures to ensure an integrated approach to supervision. The new legislation explicitly defines the OeNB's responsibility for the off-site analysis and the on-site inspection of banks (fact finding) and the FMA's role as the public authority responsible for decision taking. The clear definition of the OeNB's and the FMA's tasks, powers and responsibilities in the prudential process has helped speed up communication and ensure a risk-oriented allocation of resources. To provide for an efficient flow of relevant information, a "single point of contact" concept (SPOC) was introduced in early 2008, assigning each credit institution and each banking group to one nominated contact person at the OeNB and one at the FMA.[1]

[1] *Both SPOCs cooperate closely, with the OeNB SPOC responsible for on-site inspection and analyses and the FMA SPOC responsible for all official action and monitoring.*

A joint database in operation since January 2008 and an inter-institutional workflow to be implemented from end-2008 also contribute to efficient communication between the OeNB and the FMA. In addition, essential supervisory information and relevant official documents are presented to both institutions' senior management in the newly established FMA-OeNB "individual bank forum." The forum has been created to contribute to a joint perspective and an effective and efficient preparation of decisions; it has been smoothly integrated in the new supervisory framework implemented earlier in 2008.

Market Risk: Limited Direct Exposure

Capital requirements for position risk[19] on an unconsolidated basis were decreasing in the first half of 2008, both in absolute terms and as a percentage of total capital requirements. The latter, which in general can be considered an approximation of the individual risk categories' relative importance to the Austrian banking system, dropped by 0.6 percentage points to 3.3% in the case of market risk. By contrast, capital requirements for credit risk as a percentage of total capital requirements came to 90.4% in mid-2008, while the equivalent share for operational risk was 5.2%. Consolidated figures at the group level do not yield substantially different shares of the individual risk categories in total capital requirements and thus confirm the minor importance of market risk.

Within market risk, interest rate risk remained the dominant risk category, accounting for capital requirements of EUR 857 million in mid-2008, down by EUR 226 million compared with the beginning of the year (unconsolidated data). Capital requirements for equity positions edged up by EUR 24 million to EUR 205 million in the first half of 2008; similarly, capital requirements for foreign exchange positions increased (from EUR 74 million to EUR 100 million). These figures suggest that the loss potential stemming from market risks contained in Austrian banks' trading activities is limited. Provided that the credit institutions continue to consistently apply established risk management methods it can be assumed that banks' trading activities will not seriously jeopardize the soundness of the Austrian banking system.

Banks are exposed to market risk not only through their trading activities but also through the interest rate risk in the banking book.[20] The Basel ratio for interest rate risk[21] is an indicator for the interest rate risk in the banking book calculated by credit institutions as a part of supervisory reporting. At the level of the Austrian banking system as a whole,[22] this ratio remained at a steady 4.5% in the first half of 2008, i.e. the downward trend seen in previous years

[19] *Position risk refers to the risk of value changes triggered by stock price and interest rate fluctuations in respect of positions in the trading book, as well as to the risk of value changes arising from exchange rate and commodity price fluctuations in respect of all bank positions. This risk is also commonly referred to as market risk.*

[20] *There are no explicit regulatory capital requirements for the interest rate risk in the banking book, but banks are required to ensure adequate capital endowment that takes account of the interest rate risk in the banking book as well.*

[21] *This ratio is calculated for all credit institutions on an unconsolidated basis. It is defined as the ratio between the change in the present value of the banking book that follows a parallel yield curve shift of 200 basis points for all currencies and the unconsolidated eligible own funds. The change in the present value takes account of solely the risk of a general move in the yield curve associated with maturity transformation (yield curve risk). Basis risks associated with different interest rate changes on the asset and the liability side – which may be due to, for instance, tighter refinancing conditions – are not considered.*

[22] *A total asset-weighted average of the Basel ratio of all banks is used as an indicator for the entire system.*

had come to an end. Large banks usually post ratios (sometimes significantly) below the average value of the entire banking system, which can be attributed to these banks' active interest rate book management through interest rate derivatives.

All considered, direct market risks are therefore a limited source of risk to the Austrian banking system. Through different channels, however, there is some interaction between individual market risk factors and credit risks which Austrian banks are exposed to. This applies to bullet loans, for instance, in which the value of the repayment vehicle used to pay off the capital at the end of the loan depends to some extent on stock price developments, to variable rate loans, in which interest payments are determined by money market rates, and to foreign currency loans, in which the exchange rate between the loan currency and the euro affects the amount of interest and capital payments.[23]

Austrian Banks Maintain Sound Liquidity Profile despite Global Market Turmoil

Liquid claims (with maturities of up to three months) and liquid assets (e.g. euro government bonds) held by Austrian banks as at June 30, 2008, amounted to 112.8% of short-term liabilities (with maturities of up to three months). In other words, Austrian banks are in a position to absorb even an unexpected negative liquidity shock (such as a further tightening of refinancing conditions in the euro money market).

Analyzing the cumulative net funding gap produces a similar picture. The net funding gap is calculated based on data reported for the residual maturity statistics, where assets and liabilities are netted in three maturity bands (next banking day, up to one month, up to three months). Consideration is given to positions vis-à-vis both banks and nonbanks on both sides of the short-term balance sheet. The net positions are subsequently totaled over the three maturity bands. Austrian banks' cumulative net funding gap is inevitably negative, given the pivotal role of the banking system and the associated maturity transformation. From the second quarter 2007 to end-2007, this indicator rose from 11.7% of total assets to 14.4%. In response to the turmoil in the euro money market, Austrian banks cut back this value to 10.3% by June 30, 2008. Banks hedge the liquidity risk that comes with a negative cumulative funding gap by holding liquid assets. The Austrian banking system's coverage of the cumulative net funding gap by liquid assets increased sharply – to 164% – in the first half of 2008 compared with end-2007. After recording a rise at end-2007, banks hence reduced their liquidity risk to the level before the financial crisis (second quarter 2007: 162%). Austrian banks' cumulative net funding gap vis-à-vis other banks in Europe is only 3.5% of total assets, its coverage by liquid assets equals 484%. As the financial turmoil turned into a major crisis, Austrian banks have apparently sought to reduce their exposure to liquidity risk. Due to tightening conditions in the money and capital markets in the second half of 2008, there have been limits to these efforts, however, as refinancing maturities have become shorter and costs have risen.

[23] *In addition, foreign currency loans usually include the previously mentioned factors (variable interest rates, repayment vehicles).*

Austrian banks are highly resilient to liquidity shocks, as was confirmed by the results of stringent liquidity stress testing conducted under the IMF's FSAP update. The resilience is attributable above all to the very sound financing structure of Austrian banks by international standards, where customer deposits play a greater role than in other banking systems.[24] Amid the financial market turbulence, bank deposits have become even more important for Austrian households. 72% of new investment in the first half of 2008 were bank deposits. This took some of the edge off the tighter refinancing conditions in the euro money market and reduced dependence on more volatile money market financing options.

In view of the current euro money market situation, the OeNB has significantly reinforced its monitoring of market liquidity and maintains close contact with market participants. As part of these stepped-up activities, the OeNB has introduced a weekly liquidity monitoring system for large Austrian banks. This monitoring has shown so far that the refinancing conditions in the money and capital markets are indeed tight and that the liquidity risk has risen also in Austria but has highlighted at the same time that all Austrian large banks, with one exception, maintain a sufficient liquidity cushion to compensate for short-term net funding gaps. The adoption of the bank support package in Austria, which included the creation of a clearing house and the provision of government guarantees for bank issues, could contribute to reducing liquidity risk in the months to come.

Harmonized Oversight of Card Payment Schemes

The EU-wide harmonization of oversight activities has made progress also in the field of card payment schemes. In January 2008 the ECB Governing Council approved the "Oversight Framework for Card Payment Schemes,"[25] which lays down Eurosystem oversight standards, focusing, in particular, on ensuring the safety and efficiency of card payment schemes. The standards provide the basis for regular oversight assessments; card payment systems operating cross-border in the euro area[26] are subject to cooperative oversight by assessment groups composed of several national central banks, including the OeNB.

The card payment schemes operating in Austria have been required to submit quarterly reports to the OeNB's payment systems statistics since 2004. The number and value of transactions have been rising continuously since reporting started. Direct debit payment systems (above all Maestro/POS) accounted for the lion's share of transactions, recording around 136.6 million transactions in the first half of 2008. By contrast, owing to the general market environment the number and value of transactions processed through securities settlement systems decreased compared with the second half of 2007 (by 15.5% and 5.7%, respectively).

The vast bulk of transactions in terms of value was processed through the OeNB's system HOAM.AT,[27] however. Recording 1.6 million transactions to the total value of EUR 2,360

[24] *At end-2008, bank deposits accounted for 45.7% of Austrian households' financial assets, which represents a very high share by international standards.*

[25] *http://www.ecb.int/pub/pdf/other/oversightfwcardpaymentsss200801en.pdf.*

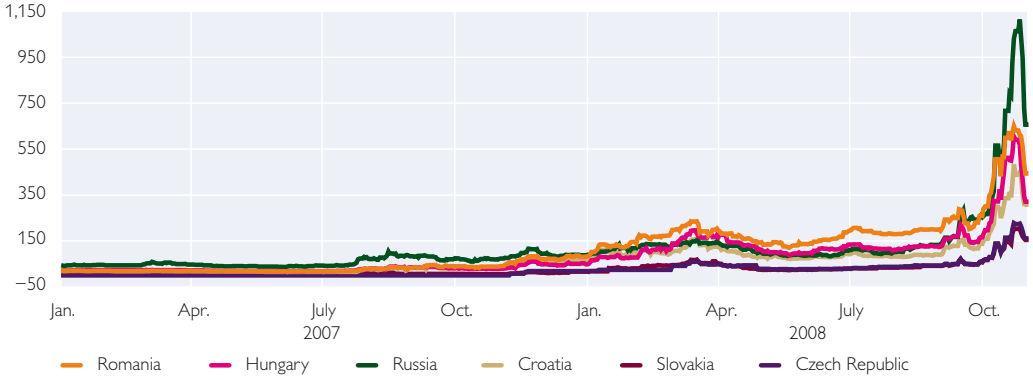
[26] *MasterCard, VISA, AmericanExpress and Diners.*

[27] *The Home Accounting Module Austria (HOAM.AT) is a real-time gross settlement system for processing euro payments provided by the OeNB to participants.*

Chart 18

5-Year Senior CDS of Selected CESEE Countries

Index (December 2000 = 100)



Source: OeNB, Bloomberg.

billion in the first half of 2008, HOAM.AT continued to be the central payment system in Austria. Likewise, the large-value payment system EURO1 remained the most important international payment system for domestic banks in terms of value, processing transactions worth some EUR 841.6 billion in the period under review. In terms of number of transactions, the international retail payment system STEP2 kept its leading position with some 10.2 million processed transactions.

As to system security, the first half of 2008 saw one system disruption[28] in HOAM.AT and a total of 35 system disruptions in retail payment systems of small infrastructure providers. None of these disturbances had a negative impact on the Austrian financial system.

Higher Exposures and Uncertainty in CESEE

Austrian banks' expansive activities in CESEE were a key reason why the Austrian banking system was hardly directly affected initially when the financial turmoil started to take hold in mid-2007. Though 5-year senior CDS spreads, a measure of investor confidence, started to increase – some significantly – also for CESEE countries from July 2007 (see chart 18), until summer 2008 this rise was seen in the context of a global risk repricing. In addition, hopes were that the real effects of the financial crisis in CESEE would facilitate a soft landing of economies threatened by overheating.

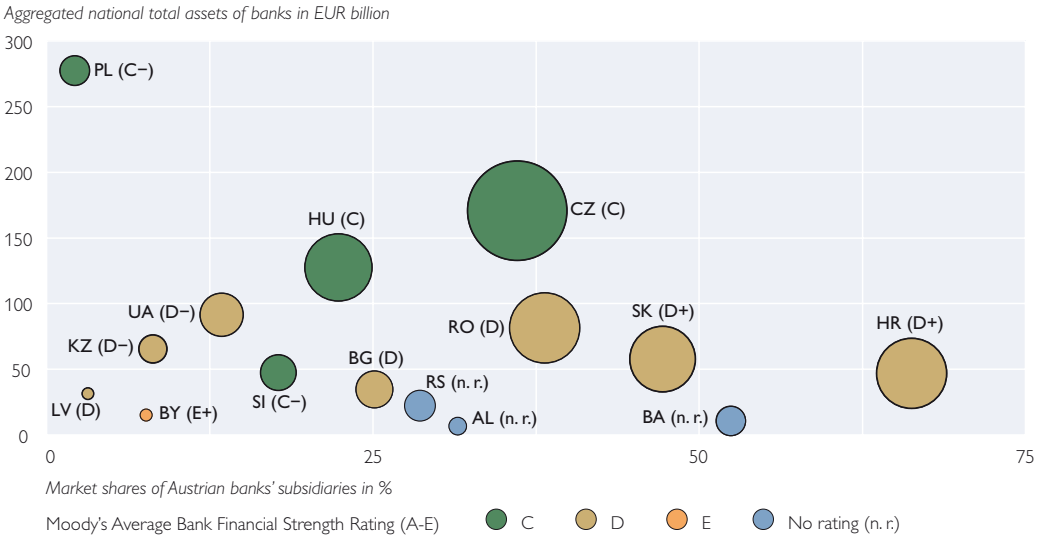
When the financial turbulence gathered momentum in the third quarter of 2008 and its repercussions were increasingly felt in Europe too, the risk positions of some CESEE countries also attracted more attention. The economic outlook for Europe as a whole had to be revised; likewise, the outlook for CESEE also became gloomier. The severe disruptions in the Icelandic economy furthermore indicated that, under the current capital market conditions, large-scale economic imbalances may be corrected relatively abruptly. Consequently, uncertainty in the CESEE countries that depend particularly heavily on external financing increased. In addition, political developments in

[28] *A system disturbance is defined as the unavailability of the payment system for more than 30 minutes during business hours or within the last 30 minutes before settlement cut-off.*

Chart 19

Market Shares of Austrian Banks' Subsidiaries in CESEE

As at June 30, 2008



Source: OeNB, national central banks, Moody's Investors Service.

Note: The chart shows the individual countries according to the Austrian subsidiary banks' market share (x-axis) and the aggregated total assets of the national banking industry (y-axis). The size of the circle corresponds to the total exposure of Austrian banks vis-à-vis the respective country. The countries are colored according to Moody's average bank financial strength (BFS) rating.
Because of the large size of the Russian banking sector (EUR 625 billion as at mid-2008), the chart does not show Russia, where Austrian subsidiaries held a market share of 3.8%. Apart from this, the chart shows all countries where Austrian subsidiaries record aggregated total assets of at least EUR 1 billion. Recent acquisitions in CIS countries (with the exception of Kazakhstan) and in Montenegro are thus not reflected.

some of the Commonwealth of Independent States (CIS) contributed to changes in investor sentiment. As a result, 5-year senior CDS spreads climbed to hitherto unprecedented levels by mid-November 2008.

The latest available data for the first half of 2008, which serve as the basis for the analysis below, do not yet reflect the most recent changes in the business environment in CESEE. Still, this information is of key importance to the banks active in the region, since Austria's large banks earn the bulk of their profits in CESEE. According to the data in the business segment reports submitted to the OeNB, large Austrian banks' activities in CESEE generated consolidated profit before taxes of EUR 3.3 billion in the first half of 2008. This substantial amount in comparison with the figures for the Austrian business segment (EUR 1.0 billion) and the rest of the world (–EUR 0.3 billion) underlines the major importance of the CESEE segment.

The data reported also confirm continued healthy growth of total assets – by some 20% to EUR 330.8 billion – in the region in the first half of 2008.[29] The aggregated total assets of the CESEE business segment hence accounted for 28.5% of the consolidated total assets of all Austrian banks at end-June 2008 (against 25.7% in the fourth quarter of 2007). Owing to the changed economic environment, it can be assumed that in the short and medium term Austrian banks' activities in CESEE will not continue to expand at

[29] *This figure for total asset growth was not distorted by significant restructuring in the first half of 2008 and is therefore based on the organic growth of existing subsidiaries and the expansion of cross-border direct lending.*

the same rate as previously; the long-term growth perspective, however, is set to remain positive.

All in all, at end-2008 twelve Austrian banks operated 73 fully consolidated subsidiaries in CESEE (not including Yapi Credit, Bank Austria's nonfully consolidated joint venture in Turkey). Of these 73 subsidiaries, 30 are doing business in those countries of the region that joined the EU in 2004 (NMS-2004),[30] seven in those that joined the EU in 2007 (NMS-2007),[31] 23 in the remaining Southeastern European (SEE) countries[32] and 13 in CIS countries.[33] Chart 19 illustrates the absolute importance of the region to the Austrian banking system in terms of the aggregated unconsolidated total assets of its regional subsidiaries and its relative importance in the local markets in terms of market share. Austrian subsidiaries continued to play a prominent role in the region in the first half of 2009. Their share in the entire CESEE banking market decreased only marginally between end-2007 (15.3%) and mid-2008 (15.2%); if Russia is not included, the decline would have been from 22.7% to 21.8%).[34]

The analysis of the fully consolidated CESEE subsidiaries' unconsolidated total asset growth shows that expansion continued almost unabatedly in the first half of 2008 (see chart 20). Austrian banks hence contributed significantly to providing access to credit in the region also under the most difficult conditions. Owing to the further deterioration of the business environment in the second half of 2008, however, total asset growth can be expected to decelerate at least in the short term, as expanding lending without providing for additional own funds inevitably leads to a lower capital ratio. At the same time, investors are currently demanding higher capital ratios, which they consider a sign of a credit institution's higher risk-bearing capacity. Even healthy banks cannot afford in the present situation not to fulfill these expectations.

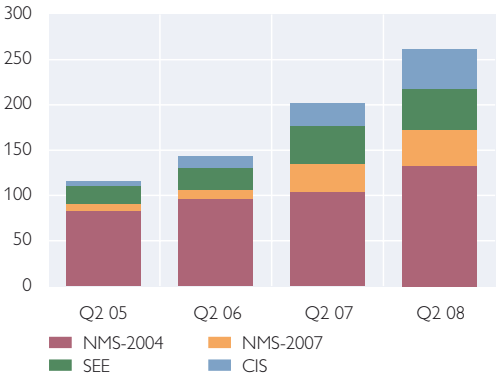
This situation can be expected to feed through to banks' market development strategies further (south-)east, where higher profits have gone hand in hand with higher risks. While accounting for more than 50% of the NMS-2004 banking sector's total assets, Austrian subsidiaries made only 41% of the regional sector's total earnings (some EUR 1 billion). In all other country groups, less capital investment pro-

Chart 20

Total Assets of Austrian Banks' Subsidiaries in CESEE

As at June 30, 2008

EUR billion



Source: OeNB.

[30] *NMS-2004: the Czech Republic (CZ), Hungary (HU), Latvia (LV), Poland (PL), Slovakia (SK) and Slovenia (SI).*

[31] *NMS-2007: Bulgaria (BG) and Romania (RO).*

[32] *SEE: Albania (AL), Bosnia and Herzegovina (BA), Croatia (HR), Montenegro (ME) and Serbia (RS).*

[33] *CIS: Belarus (BY), Kazakhstan (KZ), Kyrgyzstan (KG), Russia (RU), Tajikistan (TJ) and Ukraine (UA).*

[34] *Both figures excluding Turkey.*

duced higher gains. Austrian banks' subsidiaries in the NMS-2007 contributed 22% or EUR 550 million to total earnings (and accounted for a 15.2% share in the entire sector's total assets), SEE subsidiaries 17% or EUR 439 million (total assets share: 17.4%) and CIS subsidiaries 20% (total assets share: 16.5%). Profits in the first six months of 2008 remained stable against the quarterly growth rates, despite the global turbulence. The figures analyzed here, however, do not reflect the most recent developments since end-June 2008.

Austrian banks' indirect exposure through loans extended by CESEE subsidiaries illustrates the region's continued good access to credit provided by Austrian banks up to the second quarter of 2008. The total outstanding amount of loans extended by Austrian subsidiaries in the region advanced by 35.5% in the second quarter of 2008 against the same quarter of the previous year, coming to EUR 166.6 billion. Austrian banks' indirect exposure varied greatly within country groups: While the share of the NMS-2004 and the NMS-2007 remained more or less unchanged at 48.9% and 15.0% respectively, the SEE countries' share shrank by some 3.5 percentage points to 16.7%, while the CIS countries' share grew by about the same amount (19.4%).

Direct lending by Austrian parent banks picked up significantly in the first half of 2008. The total amount of loans extended directly by Austrian banks to customers in the region came to EUR 64.5 billion. Although growth rates differ – in part – substantially from country to country,[35] the CESEE EU Member States account for the lion's share of the total exposure. 55.8% of loans went to the NMS-2004, 13.3% to the NMS-2007, 23.2% to Southeastern Europe and 7.7% to the countries of the CIS.

Banking markets' and Austrian subsidiaries' risk positions can be assessed through internal ratings and by using external sources such as bank ratings. While the individual subsidiary ratings provided by Moody's have not (yet) reflected the deterioration of the business environment (see table 7), a change may be in the offing in the country ratings. Up to early 2008, the rating outlooks for the region were consistently positive, and up to mid-October, the actual downgrades were limited to countries which are of only marginal importance to Austrian banks (Standard & Poor's downgraded Kazakhstan and Lithuania in 2008). From October 2008 on, however, the large rating agencies issued qualitative analyses some of which described the outlook as deteriorating both at bank and country level. Early November saw the first downgrades relevant to Austrian banks. Moody's reduced the country ratings of Estonia, Latvia and Hungary, Fitch cut the ratings of Bulgaria, Kazakhstan and Hungary by one notch and Romania's rating even by two notches. The reasons cited for each downgrade were doubts about these countries' ability to absorb external shocks triggered by the financial crisis, given national macroeconomic imbalances. Consequently, Fitch also downgraded individual bank ratings, some of which affected the subsidiaries of Austrian banks.

[35] *As there were changes in reporting to the Central Credit Register in early 2008 (among other things, Austrian banks' direct loan exposure to the region has been included), a historical assessment of loan growth is possible only to a limited extent.*

Table 7

Average Ratings of Central, Eastern and Southeastern European Banking Systems and Selected Subsidiaries

As at November 13, 2008

Country	Bank	Deposits – LT	BFS Rating	Outlook
Bulgaria		Baa2	D	–
	Raiffeisenbank, Bulgaria	Baa3	D+	stable
Kazakhstan		Ba1	D–	–
Croatia		A2	D+	–
	Zagrebacka banka	Ba1	D+	stable
Latvia		Ba1	D	–
Poland		A1	C–	–
Romania		A3	D	–
	Banca Comerciala Romana	Baa3	D	stable
	Raiffeisen Bank	Baa3	D	stable
Russia		A3	D–	–
	ZAO Raiffeisenbank	Baa1	D+	stable
Slovakia		A1	D+	–
	Slovenská sporiteľňa	A1	C–	stable
	Tatra banka	A1	C–	stable
Slovenia		A1	C–	–
Czech Republic		Aa3	C	–
	Česká Spořitelna	A1	C	stable
Turkey		A3	D+	–
	Yapi ve Kredi Bankasi	B1	D+	stable
Ukraine		Ba1	D–	–
	Raiffeisen Bank Aval	B2	D	stable
Hungary		Aa3	C	–
	Erste Bank Hungary	A3	D+	stable
Belarus		Ba1	E+	–

Source: Moody's Investors Service.

Note: LT = long-term, BFS = bank financial strength.

Box 4

Banks in CESEE:[1] Mostly Sound Performance in the First Half of 2008, but Credit Risks Continue to Rise in Some Countries due to Exchange Rate Risks

Year-on-year growth in domestic lending to private nonbanks in mid-2008, expressed as a percentage of GDP,[2] was especially high in Slovenia, Bulgaria and Romania. Only in Romania, however, was this rate of expansion significantly above the corresponding value recorded at end-2007; this high rate was attributable to a large extent to the effect of the depreciation of the domestic currency (by 14% against the euro) on the credit expansion rate (calculated in national currency), which had a substantial impact due to the high share of foreign currency loans. By contrast, credit expansion was considerably lower in mid-2008 compared with end-2007 in Slovenia (albeit down from a very high level), in Croatia (very likely thanks to supervisory measures aimed at curbing credit growth) and in Hungary (presumably due to a stagnating domestic economy) in mid-2008 compared with end-2007. Both in Bulgaria (recording

[1] *This box describes the situation and development of all (domestic or foreign-owned) banks resident in these countries. For the most recent economic and financial sector developments in CESEE see section "Higher Exposure and Uncertainty in CESEE" of this Financial Stability Report.*

[2] *Total GDP of the four quarters from mid-2007 to mid-2008.*

strong domestic credit expansion) and in Croatia (posting lower and falling domestic credit expansion) cross-border financial debt[3] increased sharply (by 9.2% and 10.9% of GDP respectively), in both countries at a slightly faster pace than at end-2007.

Domestic Credit to Private Nonbanks

	2005	2006	2007	H1 08	2005	2006	2007	H1 08
	End-of-period change, % of GDP				*Real rate of change at end of period, %*			
Slovenia	11.3	13.9	20.3	18.4	21.5	22.5	26.1	19.3
Slovakia	7.8	7.2	7.8	8.0	23.5	18.5	19.5	17.3
Czech Republic	6.4	7.3	10.5	9.6	19.2	20.1	21.7	16.2
Poland	2.5	6.5	9.5	9.7	8.5	22.3	26.2	23.8
Hungary	8.1	7.9	9.7	8.3	15.1	9.5	10.6	8.4
Bulgaria	10.7	9.3	25.7	25.2	23.4	17.5	45.7	32.6
Romania	6.6	9.4	13.8	15.6	33.7	46.4	50.1	50.1
Croatia	9.5	13.6	9.9	7.2	13.4	20.7	8.7	2.7

Source: Eurostat, national central banks, OeNB.

Note: The real rate of change is derived by HICP adjustment

At mid-2008, the foreign currency share in outstanding domestic lending to enterprises and households was the highest in Croatia (including loans indexed to foreign currencies), Hungary, Romania and Bulgaria. Against end-2007, this share continued to decrease in Croatia thanks to measures taken by the supervisory authorities; in Slovakia and the Czech Republic the already relatively small foreign currency share also became smaller. In Bulgaria, by contrast, this share continued to increase notably, particularly owing to foreign currency lending to households.

Domestic Foreign Currency Loans to Private Nonbanks

	2003	2004	2005	2006	2007	H1 08
	End of period, % of total domestic loans to private nonbanks					
Slovenia	27.1	43.1	55.7	63.4	7.3	7.6
Slovakia	18.8	21.5	22.5	20.0	21.2	19.4
Czech Republic	12.8	11.2	10.0	10.4	9.1	8.4
Poland	30.6	25.3	25.9	27.0	24.2	24.8
Hungary	. .	. .	45.9	49.6	57.2	57.1
Bulgaria	43.6	48.2	47.3	45.1	50.0	53.7
Romania	55.4	60.8	54.7	47.4	54.3	55.1
Croatia	76.6	77.0	77.8	71.7	61.4	60.9

Source: National central banks, OeNB.

The foreign currency share in outstanding loans to households at mid-2008 was especially high in Croatia, Hungary and Romania. Above all in Bulgaria, Slovakia and the Czech Republic, the foreign currency share was significantly lower in lending to households than in lending to businesses, although the former recently rose strongly in Bulgaria. The high levels of foreign currency lending in Hungary and Romania continued to increase further, which may also be attributable to the relatively high interest rate differential between credit denominated in national and in foreign currency. Recently, however, foreign currency lending rose markedly in Slovenia (in Swiss francs) and Poland (predominantly in Swiss francs) too, whereas in Croatia, supervisors successfully curbed lending in foreign currency further.

[3] *Gross external debt of private nonbanks without intra-company loans and trade credits.*

Domestic Foreign Currency Loans to Households

	2003	2004	2005	2006	2007	H1 08
	End of period, % of total domestic loans to households					
Slovenia	1.0	22.5	37.4	41.7	15.2	17.5
Slovakia	..	0.6	1.1	1.7	3.0	2.6
Czech Republic	0.5	0.3	0.3	0.2	0.2	0.1
Poland	..	27.2	28.4	30.9	27.9	29.8
Hungary	..	..	29.2	42.7	55.1	58.9
Bulgaria	8.9	11.0	15.4	19.0	20.0	24.0
Romania	29.3	45.9	44.1	41.2	53.1	56.2
Croatia	81.2	79.4	80.0	77.7	67.3	65.7

Source: National central banks, OeNB.

A high share of foreign currency lending constitutes a risk to financial stability, as unfavorably developing exchange rates and/or increasing foreign interest rates could have a negative effect on borrowers' solvency, particularly since, above all, households and small and medium-sized enterprises (SMEs) might not be adequately hedged against such risks.

In Romania and the Czech Republic, bank profitability in terms of return on equity (RoE) after taxes was significantly higher in the first half of 2008 than in the corresponding period of the previous year, whereas in Hungary and – to a lesser extent – in Slovakia, bank profitability declined; in Hungary, this decrease can be attributed to weak domestic demand in the wake of fiscal consolidation measures.

Nominal Return on Equity

	2003	2004	2005	2006	2007	H1 07	H1 08
	%						
Slovenia	11.9	12.7	12.7	15.1	16.3	..	..
Slovakia	10.5	12.3	13.4	17.6	15.0	16.6	15.5
Czech Republic	17.8	18.1	18.4	17.1	19.2	18.7	19.9
Poland	5.5	17.4	24.0	21.6	24.0	26.5	26.8
Hungary	17.1	22.3	21.7	21.4	16.5	21.2	16.2
Bulgaria	14.8	16.6	18.0	19.7	21.5	20.6	21.6
Romania	17.7	17.7	15.1	11.6	10.5	12.5	15.6
Croatia	14.5	16.1	15.6	12.4	10.9	11.9	12.1

Source: National central banks, OeNB.

Note: Based on profits after tax. Half-year profits annualized linearly. Data are not comparable across countries.

The capital adequacy ratio dropped particularly markedly in Romania by mid-2008 compared with mid-2007, most likely a side-effect of the vigorous growth in lending to businesses and households. Slovakia and Poland also recorded deteriorating capital adequacy ratios, whereas Hungary and the Czech Republic posted improved ratios.

Capital Adequacy Ratio[1]

	2003	2004	2005	2006	2007	H1 07	H1 08
	%						
Slovenia	11.5	11.8	10.6	11.1	11.2	..	..
Slovakia	21.7	19.0	14.8	13.0	12.8	13.5	12.0
Czech Republic	14.4	12.5	11.9	11.5	11.5	11.8	12.4
Poland	13.8	15.4	14.5	13.2	12.1	12.4	10.9
Hungary	12.3	12.8	12.0	11.5	11.6	11.6	12.6
Bulgaria	22.2	16.6	15.3	14.5	13.8	14.4	14.5
Romania	21.1	20.6	21.1	18.1	13.8	15.0	12.8
Croatia	16.2	15.3	13.4	14.0	15.4	15.0	15.2

Source: National central banks, OeNB.

[1] Ratio of regulatory capital to risk-weighted assets.

Note: Data are not comparable across countries.

The share of nonperforming credit in total credit was at about 2% to 3% in most countries at mid-2008. Only in Poland and Romania were the shares significantly higher according to these countries' classification methods. Against mid-2007, however, the share dropped sharply in Poland, while Romania recorded a sharp increase. Interestingly, the share of nonperforming loans did not rise in Hungary despite stagnant economic growth. In countries with robust credit growth, however, there is a general risk that these shares give an overly positive impression of portfolio quality.

Nonperforming Credit

	2003	2004	2005	2006	2007	H1 07	H1 08
	% of total credit						
Slovenia	6.5	5.5	4.8	4.2	3.2	..	..
Slovakia	9.1	7.0	3.7	3.3	2.8	3.1	2.9
Czech Republic	4.8	4.0	3.9	3.7	2.8	3.1	2.8
Poland[1]	21.2	14.7	11.0	7.3	5.2	6.3	4.8
Hungary	2.7	2.7	2.5	2.5	2.4	2.5	2.5
Bulgaria	4.2	3.6	2.8	2.2	2.0	2.2	2.5
Romania	8.3	8.1	8.3	7.9	9.7	7.9	10.3
Croatia	5.1	4.6	4.0	3.2	3.1	3.3	3.2

Source: National central banks, OeNB.

[1] Data comprise both nonperforming and so-called irregular credit.

Note: Data are not comparable across countries.

Financial Market Crisis Drives Up Capital Requirements

The international financial market crisis has brought banks' capital ratios into sharp focus as they are an important gauge of banks' risk-bearing capacity. In particular, the capital (adequacy) ratio and the tier 1 capital ratio[36] serve as indicators of a bank's capital adequacy by relating the bank's entire capital and tier 1 capital, respectively, to risk-weighted assets.

At the end of June 2008, the aggregate consolidated capital ratio of all

[36] *For definitions of the capital (adequacy) ratio and the tier 1 capital ratio, see the note on table A23 in the Annex of Tables.*

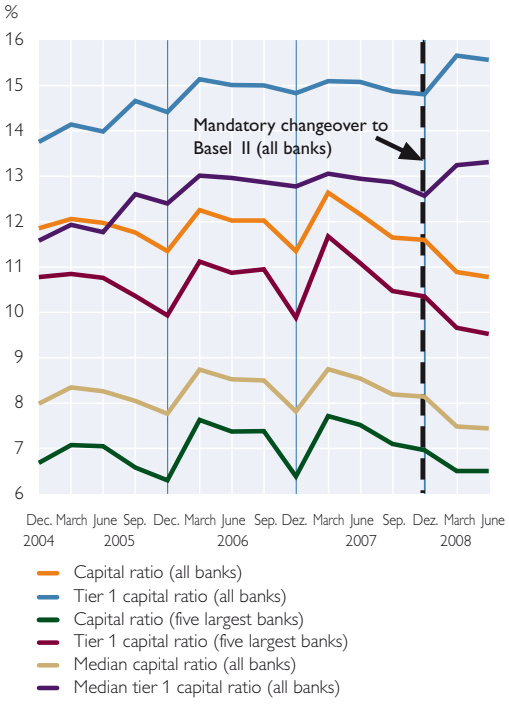
Austrian banks came to some 10.8% (see chart 21), down 1.4 percentage points from the year-earlier figure but still clearly above the minimum capital requirement of 8%. In the first half of 2008, no Austrian bank failed to comply with this minimum level of capital. In particular, the capital ratio did not increase in the first quarter of 2008 compared with its year-end 2007 level, a trend observable in previous years owing to the booking of profits. The decline of the capital ratio in the first half of 2008 is not attributable to shrinking revenues in 2007, but, among other things, to the Basel II regulatory capital requirements that took effect in Austria in January 2008.[37] The new capital requirement for operational risk introduced under Basel II totaled about EUR 3.6 billion, leading to a decrease in the capital ratio. The other capital requirements introduced under Basel II did not have a significant impact on the aggregate capital ratio. The capital requirement for market risk or for the position risk of debt instruments and equities, which had already existed under Basel I, amounted to around EUR 1.8 billion at end-June 2008 and, like in previous years, was covered largely by tier 3 capital. The transition to Basel II also had an effect on the aggregate consolidated tier 1 capital ratio, which contracted from 8.5% in June 2007 to 7.4% in June 2008.

The Basel II-induced decline in the capital ratio during the first half of 2008 was even more pronounced for Austria's largest banks. Year on year, their capital ratio dropped by 1.6 percentage points, coming to 9.5% at end-June 2008 (tier 1 capital ratio: 6.5%). However, the tier 1 capital held by the five largest banks had risen by 6.5% during the same period and came to EUR 28.7 billion at the end of June 2008.

In terms of capital adequacy, smaller Austrian banks tended to benefit from the changeover to the Basel II framework. Their median capital and tier 1 capital ratios each increased by around 0.5 percentage points year on year, reaching 15.6% and 13.3%, respectively, at end-June 2008. This can be attributed to the fact that the capital requirement for credit risk was reduced for smaller banks under Basel II, and this decrease was not entirely offset by the new requirement for operational

Chart 21

Austrian Banks' Consolidated Capital and Tier 1 Capital Ratios



Source: OeNB.

[37] *The Basel II regulatory capital requirements were introduced in Austria on January 1, 2007, but pursuant to Article 103e no. 16 Austrian Banking Act, banks were allowed to calculate their capital charges in 2007 either according to the Basel I provisions or according to the Standardised Approach under Basel II (Article 22a Austrian Banking Act). Since the beginning of 2008, all Austrian banks have had to comply with the Basel II capital requirements.*

risk. Specifically, under the Basel II Standardised Approach, corporate loans are now risk weighted at 75% (if not mortgage backed) or at 35% (if mortgage backed), while they previously had to be risk weighted at 100% and 50%, respectively.

The capital ratios of Austrian banks were still quite satisfactory in mid-2008, and any fluctuations in the ratios were primarily attributable to the application of the Basel II regime. However, market expectations regarding banks' capital adequacy have since been considerably revised upward due to the financial market turbulence. Furthermore, banks might no longer be able to rely – at least not to the same extent – on their excellent profitability performance, which had had a positive effect on their capital ratios in the past. Against this backdrop, banks with – by international standards – poorer capital ratios may be expected to take measures to shore up investor confidence. The measures adopted by the Austrian federal government in October 2008 (see box 5) are sure to support these efforts. In the event of a loss of confidence in the Austrian banking system, they will provide a basis for further timely action.

Box 5

Government Adopts Package of Measures to Strengthen the Interbank Market and to Safeguard Financial Stability

The financial crisis had deepened considerably by mid-September 2008, affecting not only U.S. institutions, but also European banks to an increasing extent. In light of the action plans and rescue measures being adopted at the national, European and international level, on October 20, 2008, the Austrian parliament likewise adopted a package of measures aimed at strengthening the Austrian financial marketplace in a move to mitigate the fallout of the crisis. Specifically, up to EUR 100 billion was earmarked for this package and may be drawn on if necessary to counteract any unfavorable repercussions of the financial crisis on Austrian financial enterprises and to bolster customer and creditor confidence. In addition, a number of measures may be used preventively as "inoculations."

The new provisions (Federal Law Gazette 2008/136) basically rest on two new acts, namely the Interbankmarktstärkungsgesetz (IBSG; interbank market support act) and the Finanzmarktstabilitätsgesetz (FinStaG; financial stability act), as well as on amendments to the ÖIAG[1] Act and to material financial market-related legislation.

The IBSG is meant to revitalize the interbank market, which has been crippled by banks' mutual lack of confidence. The act will remain in effect until the end of 2009. Under this act, banks holding an Austrian banking license (possibly also Austrian insurance corporations) may set up a separate company to act as a "clearinghouse" for which the federal government may assume liability and which may borrow interbank funds to be subsequently lent to other banks (and possibly also insurance corporations). For funding purposes, the clearinghouse may for instance issue securities, which the federal government may again back with a state guarantee. Furthermore, in order to improve medium-term financing conditions in particular, the federal government may also assume liability for bank-issued securities with a maturity of up to five years. The measures envisaged by the IBSG total some EUR 75 billion.

The FinStaG enables the Federal Minister of Finance, partly upon approval by the Federal Chancellor, to use a number of instruments for the recapitalization (defined broadly) of banks and domestic insurance corporations. This measure is worth EUR 15 billion and may be increased provided the EUR 75 billion envisaged under the IBSG have not been fully drawn on.

[1] *ÖIAG: Österreichische Industrieholding Aktiengesellschaft (OIAG, the Austrian state holding company).*

The instruments are as follows:
- *Issue guarantees for the liabilities of an institution or for an institution's liabilities to public entities,*
- *extend loans,*
- *strengthen the capital base of banks,*
- *Acquire shares/convertible bonds in connection with capital increases or via a legal transaction,*
- *take over a company's net assets.*

If these instruments prove to be insufficient or if they may not be used at all or not in a timely fashion, the Federal Minister of Finance together with the Federal Chancellor may furthermore, under certain conditions, temporarily take over the property rights of a bank – following adequate compensation of the shareholders. To this end, the federal government may involve the ÖIAG or a subsidiary to be set up by the ÖIAG. The Financial Market Authority FMA is obliged to inform the Federal Minister of Finance of circumstances that may indicate a need for action in line with this act.

Based on a legal authorization, the Federal Minister of Finance in agreement with the Federal Chancellor issued a regulation on the general conditions for providing funds in connection with the measures set forth in the two acts. Apart from requiring a charge in line with general market practice, these conditions comprise in particular terms relating to the sustainability of business policies, use of funds, remuneration systems, capital ratios, distribution of profits, preservation of jobs, prevention of competitive distortions and disclosure obligations.

Following the example of other EU Member States, the Austrian government furthermore raised its deposit guarantee in order to shore up public confidence. For deposits held by natural persons, the EUR 20,000 cap on the deposit guarantee was lifted retroactively to October 1, 2008, and now provides unlimited coverage; as of 2010, the deposit guarantee scheme will cover a maximum amount of EUR 100,000. Deposits held by legal persons are still covered up to a level of EUR 20,000 (maximum retention: 10%), while the cap applicable to deposits held by partnerships or corporations that meet specific size criteria was increased to EUR 50,000. The funding of the deposit guarantee scheme was also partly amended.

The measures also authorize the FMA to prohibit or curtail short-selling for a limited period of time. In addition, the scope of action for supervisors was extended with regard to prescribing capital add-ons as a precautionary measure under the Supervisory Review Process (Pillar 2 of the Basel II framework) should they deem this necessary from a risk control perspective.

It is also worth mentioning that the Austrian package of measures is closely aligned with the "Declaration on a concerted European action plan of the euro area countries," which was also endorsed by the European Council. In this respect, the measures were designed to promote both stability and a level playing field.

The Oesterreichische Clearingbank AG (OeCAG), the clearinghouse established pursuant to the IBSG, started operations in mid-November 2008. Furthermore, several banks have already expressed interest in availing themselves of FinStaG-based measures to strengthen their capital base. A stock corporation for financial market investments of the Federal Republic of Austria, the Finanzmarktbeteiligung Aktiengesellschaft des Bundes (FIMBAG), was founded in November to implement such measures and to manage the resulting participations.

Ratings of Largest Austrian Banks Remain Unchanged for the Time Being

Market indicators such as the development of stock prices and ratings can be used to complement supervisory reporting in the assessment of a bank's risk profile. For this purpose, long-term deposit ratings and especially Moody's Bank Financial Strength Ratings (BFSRs) prove particularly useful.

Table 8

Ratings of Selected Austrian Banks

As at November 13, 2008

	Deposit rating		Bank Financial Strength Rating	
	Long-term	Outlook		Outlook
Bank Austria	Aa2	stable	C+	stable
BAWAG P.S.K.	Baa1	stable	D	stable
Erste Bank	Aa3	stable	C	stable
HGAA	A2	negative	D–	positive
ÖVAG	Aa3	stable	C	stable
RZB	Aa2	stable	C	stable

Source: Moody's Investors Service.

The recent developments in international financial markets did not impact Moody's ratings of Austria's largest banks until October 2008 (see table 8). However, in early November 2008, the nationalization of Kommunalkredit resulted in a downgrading. While Fitch changed the outlook on the former ÖVAG subsidiary to positive, that of the parent company was changed to negative. Moreover, Moody's changed the outlook on the Hypo Group Alpe Adria, (HGAA) long-term deposit rating from "under review" to negative. The rating agency stated that it wanted to wait and see how any state aid, the probability of which it had already factored into the rating on the positive side, actually turns out. The Standard & Poor's ratings of Austria's largest banks remained unchanged for the time being; however, the outlook on Erste Bank and RZB was revised downward in light of their CESEE business and the gloomy economic outlook for this region.

Stocks of Major Austrian Banks under Pressure

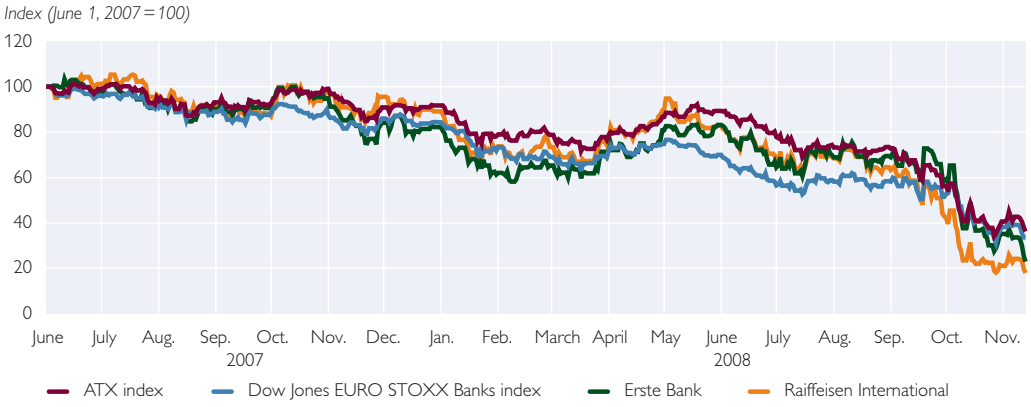
Stocks issued by banks underwent a period of extreme volatility in the midst of market uncertainty. As a case in point, Erste Bank and Raiffeisen International Bank-Holding AG, the two stocks listed in the ATX Prime index, saw marked setbacks as bank-issued securities had come under pressure worldwide. Concerted action conceived at the European level and implemented at the national level served to instill new confidence in bank stocks from mid-October onward.

The Dow Jones EURO STOXX Banks index,[38] Erste Bank, Raiffeisen International and the ATX index have lost an average of 0.17%, 0.16%, 0.28% and 0.6% (respectively) per day since the outbreak of the financial crisis (see chart 22). In an early phase, when the label "high risk" was still primarily assigned to U.S. subprime loans and credit derivatives, the value of European bank securities plunged by around 35% amid market uncertainty about the banks' actual exposure (Dow Jones EURO STOXX Banks index). Austrian banks were likewise hit by the first wave of waning confidence, even though their subprime exposure was relatively low. At that point in time, investors did not yet fully consider the

[38] *The Dow Jones EURO STOXX Banks index, which is a weighted index of bank shares, includes 39 European banks (e.g. Erste Bank, Raiffeisen International and UniCredit).*

Chart 22

Price Development of Austrian Banks' Stocks



Source: OeNB, Bloomberg.

impact the financial crisis would have on the real economy (ATX performance). The first culmination – when Bear Stearns was sold to JPMorgan Chase in an emergency bailout under the auspices of the Federal Reserve – was followed by a brief respite from April to end-May 2008, during which the stock prices of the two banks listed in the ATX Prime segment as well as the index itself registered gains. In mid-2008, fears about a downturn in the real economy started to materialize. As an increasing number of banks in continental Europe were hit by the crisis in September 2008, the downward trend began to pick up speed. Eventually, the outlook for CESEE, an important market for many businesses listed in the ATX, also deteriorated, not least due to the problems observed in Iceland. In October, panic selling swept markets worldwide, a development which was somewhat exacerbated by portfolio stop loss rules and precipitated record losses on both the Austrian and international stock exchanges.

The spreads on credit default swaps (CDS) of the two Austrian banks in the ATX Prime index showed similarly volatile developments. At around 220 basis points, the current CDS spreads (as at mid-November 2008) exceed the level registered in March 2008.[39] Similar trends are evident in the European banking sector. The development of the implied volatilities of at-the-money call options on these two Austrian bank stocks is also indicative of the financial crisis. Their short-term rise points to further and even more pronounced movements in stock prices.

Financial Turmoil also Has Repercussions on Other Financial Intermediaries

Outlook for the Insurance Sector Clouds Over

The European insurance sector posted weaker overall growth in the first half of 2008, a development which may be traced above all to lower investment results in the wake of the financial market turmoil. The underwriting

[39] *In this context, it is important to add that the informative value of CDS spreads is limited for these two banks because the market is thin and price setting is thus based on low volumes. At the same time, even though smaller changes in the spreads must therefore be interpreted with caution, a trend is clearly discernible for 2008.*

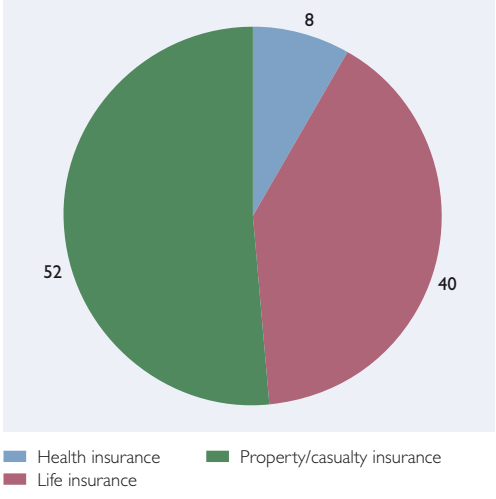
business was influenced by fairly favorable developments of loss events and added substantially to the satisfactory performance of the insurance sector. The deteriorating outlook for the real economy and the large stock price swings, however, contributed to weaker demand in particular for unit-linked life insurance plans and to slower growth of the property/casualty segments. The European insurance sector's risk-bearing capacity appears to have remained adequate, and its exposure to the U.S. subprime market and to structured credit products is essentially limited and for the most part carries the highest ratings. In general, writedowns were far lower in the European insurance sector than in the banking sector. However, insurance companies that draw up IFRS-compliant financial statements and that have so far recognized revaluation losses in equity will post these losses to their income statements after 6 to 12 months, which is likely to occur in the second half of 2008 and which may dampen profitability.[40] At the global level, though, some insurance companies – mainly companies outside the European Union – were compelled to take massive writedowns of their structured credit portfolio. U.S. bond and credit insurers, who guarantee the creditworthiness of structured credit products, were most severely affected.

Chart 23

Breakdown of Austrian Insurance Companies' Premium Income by Segments

As at the fourth quarter of 2007

Share in %



Source: FMA.

In 2007, the total assets of Austria's insurance sector expanded by just under 7%. Aggregate assets amounted to EUR 87 billion in the fourth quarter of 2007 and were equivalent to 32.4% of Austria's GDP.

Austrian insurance premium income ran to EUR 17.9 billion at the end of 2007, with EUR 7.2 billion attributable to the life insurance segment, EUR 9.2 billion to the property/casualty insurance segment and EUR 1.5 billion to the health insurance segment.

Premium income growth stagnated in 2007, falling by 0.05% in real terms[41] and declining in the life insurance segment. Conversely, in the first two quarters of 2008, the life insurance segment – in particular index-linked life insurance – posted a rise in single premiums whereas premiums dropped in real terms in the property/casualty segment.

[40] *Moody's Report: European Insurers' H1 2008 Results. August 2008.*

[41] *Adjusted for inflation.*

Table 9

Key Indicators for the Austrian Insurance Sector in 2006 and 2007

	Real premium growth		Combined ratio		Claims ratio		Cost ratio		Net interest		Solvency ratio
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2007
	%										
Total	0.03	−0.05	104.4	105.2	69.41	68.40	26.14	27.01	5.68	4.98	261.39
Life insurance	−0.65	−1.53	x	x	x	x	16.35	15.86	5.35	4.75	163.47
Property/casualty insurance	0.38	0.98	108.8	109.9	68.76	67.64	40.02	42.29	7.27	6.34	439.79
Health insurance	1.26	0.97	86.4	85.7	72.09	71.55	14.33	14.01	4.14	3.07	394.15

Source: FMA, OeNB calculations.

Note: As life insurance claim payments fluctuated considerably, partly due to external factors, an analysis of the combined ratio and the claims ratio on the basis of just two data points does not provide a meaningful result. For the sake of consistency, the row "Total" shows only non-life insurance combined ratios and claims ratios.

The combined ratio shows the sum of operating expenses and claims payments in relation to the premiums earned in property and casualty insurance. This ratio provides an insight into the profitability of the underwriting business. In other words, if the ratio exceeds 100%, it indicates a loss in underwriting operations. In such a case, a profit on business other than underwriting, in particular on investment results, can offset or reduce such losses. In 2007, the combined ratio expanded marginally to roughly 110%, which was traceable to a rise in the cost of concluding insurance contracts. In an environment of higher volatility and unfavorable financial market developments, investment results contribute less to the profitability of property/casualty insurance.

The claims ratio depicts expenditure on claims as a percentage of total premiums[42] and reflects an insurance company's ability, throughout the insurance cycle, to assume risk at an appropriate price. In 2007, the claims ratio in the property/casualty segment dipped by 1 percentage point to 67.7% of premium income. However, in the first two quarters of 2008, claims payments in the property/casualty segment widened more strongly than premiums.

Investment profitability[43] diminished by 0.7 percentage points to just under 5% in 2007. This result reflects the favorable macroeconomic environment of the first half of 2007 and the U.S. subprime crisis of the summer of that year. In 2008, investment results continued to decline noticeably in the first two quarters as a consequence of persistently strong financial market volatility.

Austrian insurance companies' provisions to cover and meet the claims of insurance holders ran to EUR 70.6 billion.[44] At the end of June 2008, insurances companies had invested just under 12% of their cover reserves and cover assets in stocks, 49% in debt securities and 17% in investment funds. A large part of the debt securities were corporate and bank bonds, whose credit and liquidity risk is higher than that of government bonds.

[42] *Adjusted for the reinsurance share in each case.*

[43] *Ratio of the net investment result to average investment in the respective calendar year.*

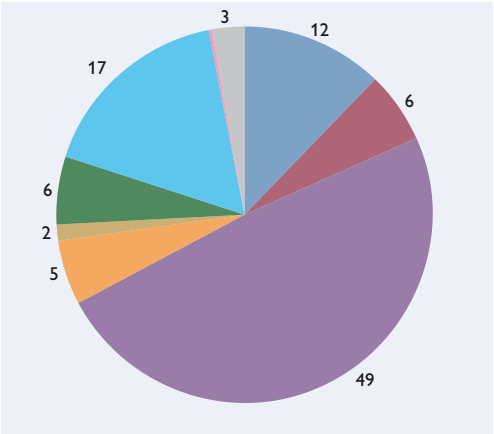
[44] *Exclusive of unit- and index-linked life insurance policies.*

Chart 24

Investment of Austrian Insurance Companies' Cover Reserves and Cover Assets

As at end-June 2008

%



Source: FMA.

Only minor changes in insurance companies' investment strategies could be observed in the first two quarters of 2008. The weight of stocks in the investment portfolio dropped marginally, but this may be traced for the most part to the relative value change of insurance companies' portfolios.

Insurance companies' capital ratio provides information about their risk-bearing capacity. A look at the solvency ratio – available capital (own funds) as a share of the regulatory capital requirement – indicates that the Austrian insurance industry is adequately capitalized. The solvency ratio has risen markedly since 2003 and is highest for insurers in the property/casualty segment. Austrian insurance companies' capital ran to roughly EUR 7.5 billion at end-2007, with the share of capital in total assets having increased by 1 percentage point to 8.6% in 2007.

Market indicators for both the European and the Austrian insurance sectors reflect higher uncertainty, which is attributable to the financial turmoil on the one hand and to potentially weaker income dynamics on the other. Developments surrounding several U.S. and European financial institutions triggered price losses even of insurance companies' stocks. However, performance varied widely among insurance companies, depending – inter alia – on their diversification, income structure, regional focus and on the size and transparency of their structured credit portfolios. The stock prices of insurance companies listed on the prime market segment of Wiener Börse AG took a beating between May 2008 and mid-November 2008.

Investment at Banks Augments Again

Year on year, Austrian insurance companies' total exposure to domestic banks jumped by 35% to EUR 14.9 billion (15.1% of total assets of the Austrian insurance industry) in the second quarter of 2008. Cash held with domestic credit institutions rose especially strongly. Overnight deposits and longer-term balances with Austrian banks doubled to EUR 4.2 billion, among other things as a result of developments in the financial markets. Debt securities issued by domestic banks accounted for the bulk of the remaining exposures, which had climbed by 4.2% to EUR 9 billion. Year on year, loans to domestic banks rose by 30% to just under EUR 0.7 billion. Insurance companies' investments with domestic credit institutions thus grew to slightly more than 1.4% of Austrian banks' consolidated total assets.

For both the European and the Austrian insurance sector, lower investment results in the wake of more pronounced insecurity on financial markets may continue to weigh on insurance company profitability. Moreover, an unfavorable development of loss events as well as an underestimation of longevity risk may reduce insurance companies' risk-bearing capacity. A more risk-adequate pricing of assumed risks may help to reduce these risks, but competition in some insurance segments is relatively high. Against this background and given the weakening real economy, the outlook for European and Austrian insurance companies has deteriorated.

Mutual Funds Record Ongoing Outflows

In the period under observation, the development of the European mutual fund market was characterized by heightened uncertainty among investors and by high volatility on the financial markets. Assets under management by European mutual funds[45] contracted by 8.0% to EUR 7,280 billion in the first half of 2008 and by 11.6% year on year. In the second quarter of 2008, mutual funds registered net outflows for the fourth quarter in a row. Even money market funds, whose strategy focuses on capital preservation, suffered net outflows in the second quarter of 2008. Only balanced funds succeeded in netting slight inflows. Against the backdrop of higher financial stability risks in Europe and investors' reduced risk appetite, the outlook for the European mutual funds sector remains uncertain.

Domestic Investment Becomes More Important for Austrian Mutual Funds

The Austrian mutual funds sector continued to post a weak overall performance in the first six months of 2008. Assets under management by Austrian mutual funds (including fund-of-fund investments) fell by 14.6% year on year – or by 10.1% from the beginning of 2008 – to EUR 148.9 billion. The reassessment of credit risk and higher inflation caused stock prices to slump and the price of debt securities to decline, entailing price losses, lower dividends and net outflows from mutual funds. This development benefited bank deposits, as investors' interest in such investment has been rekindled since the outbreak of financial turbulence in the summer of 2007. Since June 2007, mutual funds have reduced their foreign positions (–17.1%) to a greater extent than their domestic positions (–9.8%), which may be seen as an indicator that mutual funds tend to opt for domestic over foreign investment in an environment of greater uncertainty. Mutual funds reduced their holdings of foreign equity securities (–37%) most strongly. Conversely, the share of domestic equity securities even rose marginally by 2.4% in the first half of 2008. Both domestic and foreign real estate and tangible assets expanded powerfully (by 36% and 43%, respectively), but their combined share in total assets came to only about 1.3%. The capital-weighted average total performance of all Austrian mutual funds stood at –5.3% in the first half of 2008. Equity funds performed worst, with their value contracting by 20.1%, and balanced funds

[45] *Here, mutual funds comprise undertakings for collective investment in transferable securities (UCITS) and non-UCITS.*

lost 5.8%. Money market funds and fixed-income funds (just under –0.4% and –0.5%, respectively) did not succeed in posting a positive performance, either. Only real estate funds registered gains, a development traceable to the minor role of listed assets in their portfolios.

With credit markets drying up further and stock exchanges being shut down, above all in Russia, some mutual funds temporarily suspended the redemption of shares on the grounds that some assets could not be valued. According to the Austrian Financial Market Authority FMA, the trading of shares of 16 of the total of about 8,300 (domestic and foreign) mutual funds registered for operation in Austria was temporarily suspended; 6 of these funds had been set up by Austrian investment companies.

The direct risk investment companies pose for Austrian banks is limited, however, and consists mainly of a possible future worsening of their profitability. The business and profit performance of Austrian investment companies, which are largely owned by Austrian banks, reflected the difficult business environment for mutual funds in the first half of 2008. As a result of the 15.1% drop in fee-based income following the fall in sales of shares and lower asset values, operating income went down by 13.9% to EUR 179.6 million. At the same time, operating expenses rose by 7%, so operating profit plunged by 30.6% to EUR 80.4 million.

Pension Fund Performance Affected by Financial Market Turbulence

In the second quarter of 2008, 6 multi-employer and 13 single-employer occupational pension funds were operating in Austria. The aggregated total assets of investment and risk-sharing groups diminished to EUR 12.6 billion in the second quarter of 2008 from EUR 13 billion in the second quarter of 2007. Pension funds outsourced the bulk of investment. About 91.1% of pension funds' assets were held in the form of mutual fund shares. The share of foreign currency investment decreased to 3.7% from 4.6% in the second quarter of 2007. At the end of 2007, there were 484,359 prospective beneficiaries and 58,471 beneficiaries. Roughly 84% of all (prospective and retired) beneficiaries were assigned to a defined contribution system, while the remaining 16% were assigned to a defined benefit system.[46] About 27.4% of aggregate premium reserves are backed by a minimum return guarantee, and about 4.9 percentage points of these 27.4% are additionally partly secured by employers' obligation to make unlimited supplementary contributions.[47] While there is no minimum return guarantee for 72.6% of aggregate premium reserves, 21.6 percentage points thereof are partly secured by employers' obligation to make supplementary contributions.

The remuneration for covering operating expenses, which is borne by the beneficiaries, came to around EUR 64.3 million and has thus remained

[46] *Source: Fachverband der Pensionskassen (Austrian occupational pension fund association).*

[47] *Source: Aggregated balance sheet of Austrian pension funds (according to FMA data).*

practically unchanged against the previous year.[48] This figure corresponds to 27.7% of the investment result of investment and risk-sharing groups (EUR 231.9 million), to 8% of contributions (EUR 807.2 million) and to 0.5% of assets (EUR 12.6 billion). Income on ordinary activities ran to EUR 30.7 million, translating into a return on equity (ROE) before taxes of 16.5%.[49]

Pension funds' asset allocation breakdown has changed in the wake of the financial turmoil that started in August 2007: Investment in euro bonds (including cash and loans) advanced from 55% in the second quarter of 2007 to 65.1% in the third quarter of 2008, investment in euro area stocks sank from 25% to 19% and investment in other stocks declined from 16.8% to 12.6%. The shares of non-euro-denominated bonds (1.3%) and of real estate (2% compared to 1.8%) were adjusted only minimally. This shift in asset allocation may be traceable to relative price changes, but also to a change in pension funds' investment strategy. From January through September 2008, their average return on investment[50] came to –8.40% (in nominal terms).[51] From December 31, 1997, (when the Oesterreichische Kontrollbank, OeKB, started to calculate return on investment) up to the third quarter of 2008, i.e. over a period of more than ten years, multi-employer occupational pension funds achieved a nominal return on investment of 3.38% per annum and single-employer occupational pension funds one of 4.21% per annum.[52]

[48] *Source: Aggregated balance sheet of Austrian pension funds (according to FMA data).*

[49] *Equity is defined as in the Federal Act on the Establishment, Administration and Supervision of Pensionskassen, Annex 1, Form A, liabilities, item A. If equity is adjusted for the minimum yield reserve (which is not provided by stockholders, but by prospective and retired beneficiaries), ROE comes to 22.3%. If income on ordinary activities is adjusted for transfers to the minimum yield reserve (this reserve accrues to stockholders only if the minimum return guarantee does not become effective), ROE comes to 13.7%.*

[50] *Unfortunately, the Austrian occupational pension fund association has discontinued publication of pension funds' performance data on its website (www.pensionskassen.at).*

[51] *Source: Oesterreichische Kontrollbank. Inflation as measured by the Harmonised Consumer Price Index (HICP) came to about 2.2% in Austria from January through September 2008.*

[52] *A comparable investment not subject to investment income tax would have had to yield 4.5% or 5.6% per annum to match the performance of multi-employer and single-employer occupational pension funds, respectively. Between 2000 and 2008, pension payments fell between 25% (investment and risk sharing groups with a discount rate of 6.5%) and 15% in nominal terms (investment and risk sharing groups with a discount rate of 5%), which equals a decline in real terms by 35% and 25% respectively (according to data provided at the information day of the Austrian pensioners association (Österreichischer Seniorenrat) on June 30, 2008, and OeNB. 2008. Statistiken Daten & Analysen Q4/08). Pensions funds are planning to cut pension payments by an average 12% in nominal terms in 2009 (source: Austrian occupational pension fund association).*

Special Topics

The Refinancing Structure of Banks in Selected CESEE Countries

Zoltan Walko[1]

Since the onset of the global financial market turbulence in mid-2007 there have been concerns whether and to what extent the unfolding liquidity squeeze may affect banks in Central, Eastern and Southeastern Europe (CESEE). In this note, we present systematic regional and cross-country information about the refinancing structure of the banking sector in selected CESEE countries as at end-2007 and mid-2008 (most recent data, depending on data availability). Thus, we focus on the situation of banks in these countries before external funding conditions deteriorated significantly for some of them, which happened in the second half of 2008 and has become particularly evident since mid-September. We benchmark the region against the euro area, and – where appropriate – against non-European emerging market economies. This exercise is to contribute to a better understanding of the risks to these countries emanating from the global liquidity squeeze, which may turn out to be more persistent and more relevant for the CESEE region than assumed when the turbulence began to unfold in mid-2007.

JEL classification: G15, G21, G32, O16, O52
Keywords: financial stability, banking sector, Central and Eastern Europe, refinancing

1 Introduction

Since the onset of the global financial market turbulence in mid-2007 there have been concerns whether and to what extent the unfolding liquidity squeeze may affect banks in Central, Eastern and Southeastern Europe (CESEE). Spillover effects were feared given the strong reliance of most of these countries' banking sectors on foreign financial resources (in part from foreign parent banks), which had played a major role in financing the rapid expansion of credit to domestic residents over the past few years. These fears have additionally been fueled by large external imbalances, which have made several CESEE countries susceptible to a change in investor sentiment and a sudden stop or reversal of foreign capital inflows. In fact, big Nordic banks, the major foreign creditors to the three Baltic countries, have reportedly turned more cautious in their lending activities since the beginning of 2007. This has been associated with a marked slowdown in domestic credit activity in the three Baltic countries.

In this note, we present systematic regional and cross-country information about the refinancing structure of the banking sectors in selected CESEE countries[2] as at end-2007 and mid-2008 (most recent data[3], depending on data availability). Thus, we focus on the situation of banks in these countries before external funding conditions deteriorated significantly for some of them, which happened in the second half of 2008 and has become particularly evident since mid-September. We benchmark the region against the euro area, and – where appropriate – against non-European emerging market economies. This exercise is to contribute to a better understanding of the risks to these countries emanating from the global liquidity squeeze, which may turn out to be more persistent and more relevant for the CESEE region than assumed when the turbulence began to unfold in mid-2007.

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[2] *With a focus on Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia.*

[3] *Cut-off date: November 5, 2008.*

2 Impressive Financial Deepening

Financial deepening has advanced dynamically in the CESEE region for the past few years. In most countries under review, the ratio of bank credit to households and nonbank corporations to GDP increased by 15 to 25 percentage points between end-2004 and mid-2008; in Bulgaria and Slovenia the increase was even higher at nearly 40 percentage points. In fact, the speed of financial deepening was broadly comparable to that seen on average in the euro area (+27 percentage points).[4] However, given the lower starting level of the credit-to-GDP ratio, the relative increase was much bigger in CESEE than on average in the euro area. Notwithstanding this impressive development, the private sector credit-to-GDP ratios in the countries under review continue to lag the euro area average by a substantial margin (between 37% and 85% vs. 140% as of mid-2008). The ratios of some CESEE countries in the sample (Slovenia, Croatia and Bulgaria, posting ratios between 75% and 80%) were already close to the lowest ratio of euro area countries (Finland and Greece, whose ratios range from 85% to 95%) in mid-2008. Looking at more recent developments, credit growth slowed moderately in some countries of the region during the third quarter of 2008, but available lending surveys suggest a substantial tightening of lending conditions and a marked deceleration of credit demand in the foreseeable future.

In general, financial deepening was a welcome phenomenon in the Central and Eastern European EU Member States during the past decade. There is a large body of literature about a finance-growth nexus that emphasizes the positive relationship between credit-to-GDP levels and economic development, with most results suggesting that causality runs from financial deepening to economic growth (for a literature overview, see e.g. Terrones and Mendoza, 2004, or Rajan and Zingales, 2001). Credit growth in the CEE EU Member States has improved access to credit for both households and corporations, thus making intertemporal substitution easier, and has also likely led to a more efficient use of financial resources through the reallocation of credit from the public to the private sector (see e.g. EBRD, 2006, or Égert et al., 2006).

However, some related risks should not be overlooked. From a macroeconomic point of view, strong credit growth has contributed to an output boom in several countries, leading to capacity constraints in some branches, higher inflation and current account deficits. Moreover, latest estimates (Eller et al., 2008) showed that private sector credit levels in Bulgaria and Croatia had already been well within the estimated equilibrium range by the first quarter of 2008, while private sector credit levels in the other countries reviewed here continued to be in the lower part of the equilibrium range (Hungary, Slovenia and Croatia) or even marginally below the equilibrium range (Czech Republic, Slovakia, Poland and Romania). From a financial stability perspective, the high share of foreign currency lending, the increasingly insufficient domestic funding base and risks to the underlying quality of banks' assets (due to, e.g., banks increasingly accessing "marginal" customers, rising

[4] *It should be noted that the euro area average masks big differences between individual euro area countries (ranging from a decline in the private sector credit-to-GDP ratio in Germany to a very strong expansion of the ratio in Luxembourg, Ireland, Cyprus and Spain).*

loan-to-value ratios, customers' rising debt burdens and increasing exposure to the property market) have been among the most prominent concerns.

3 Stylized Facts about CESEE Banks' Main Assets

Before turning to the refinancing structure of banks, it is instructive to take a closer look at selected items on the asset side of their balance sheets. At mid-2008, credit to households accounted for a substantial portion of total credit to the nonbank private sector ("nongovernment nonbanks") in Poland (57%), Croatia (55%), Romania (48%), the Czech Republic and Hungary (both around 43%). In addition, private sector credit growth in these countries – with the exception of Hungary – between end-2004 and mid-2008 was mainly driven by credit to households. In comparison, the share of household credit in the outstanding stock of credit to nongovernment nonbanks stood at 36% to 40% in Bulgaria and Slovakia and at only 25% in Slovenia at mid-2008. While in Slovakia credit to households was the major driver of the expansion of private sector lending in recent years, in Bulgaria and Slovenia, credit growth was fuelled by credit to nonbank corporations.

Within household credit, housing loans dominated in the Czech Republic (71%) and Slovakia (67%). By contrast, in Romania consumer loans were the prevalent type of credit (80%), while in the remaining countries household credit was roughly evenly split between housing loans on the one hand as well as consumer loans and other purpose loans on the other.

However, it needs to be borne in mind that the classification into consumer loans and housing loans does not necessarily reflect the actual utilization of these loans. The case of Hungary provides a good illustration. In fact, Magyar Nemzeti Bank (MNB, 2008) estimates that as much as 30% of subsidized housing loans have been used for consumption purposes, while foreign currency-denominated home equity loans (freely usable mortgage loans) have more recently often been used for housing purposes, because the administration related to taking out and utilizing these loans is much simpler; moreover, price differences between the two types of loans have been diminishing. Similarly, anecdotal evidence suggests that the delineation between loans to households and to corporations may be blurred if the owners of small enterprises take out personal loans (i.e. household loans), but make the funds available to their businesses.[5] Such behavior may be motivated, for example, by the fact that the administrative burden is lower for household loans than for corporate loans or that fierce competition in the household segment leads to lower interest rates than in the corporate segment. If reaching a sufficient scale, such developments may have an impact on the economic interpretation of the sectoral breakdown of loans.

Net credit to the general government[6] played an important role in the Czech Republic, Hungary, Poland and Slovakia and was associated with intermediate to somewhat elevated public debt ratios in these countries (between 29% and 66% of GDP; euro area average: around 65%). Claims on the cen-

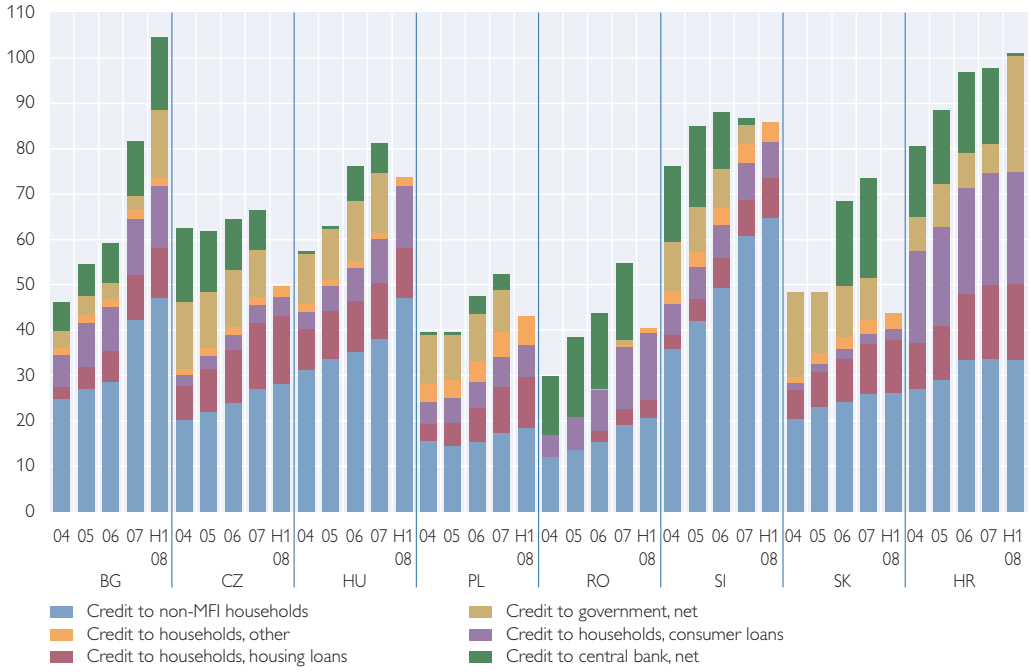
[5] *This potential source of distortion is in addition to the difficulties of and cross-country differences in the sectoral delimitation between households and nonfinancial corporations as far as individual entrepreneurs are concerned.*

[6] *Net of central government deposits (in line with the monetary survey approach).*

Chart 1

Structure of Domestic Credit

Stock at end of period as a percentage of GDP



Source: National central banks, OeNB.

Note: In Croatia consumption credit to households include credit for other purposes. In Romania consumption credit represents total household credit in 2004 and 2005.

tral bank were substantial in Romania and Slovakia, and – albeit to smaller extent – also in Bulgaria, Croatia and the Czech Republic, followed by Hungary and Poland. In this context, however, it needs to be pointed out that while banks in the Czech Republic, Hungary, Poland and Slovakia can – to some extent – dispose freely of their claims on the central bank (i.e. of the funds which are "parked" in central bank sterilization facilities), in Bulgaria, Croatia and Romania these claims are attributable to a large extent to high mandatory reserve rates and similar mandatory central bank instruments (which have often been imposed to stem credit growth).

4 Net Foreign Liabilities: An Important Refinancing Item

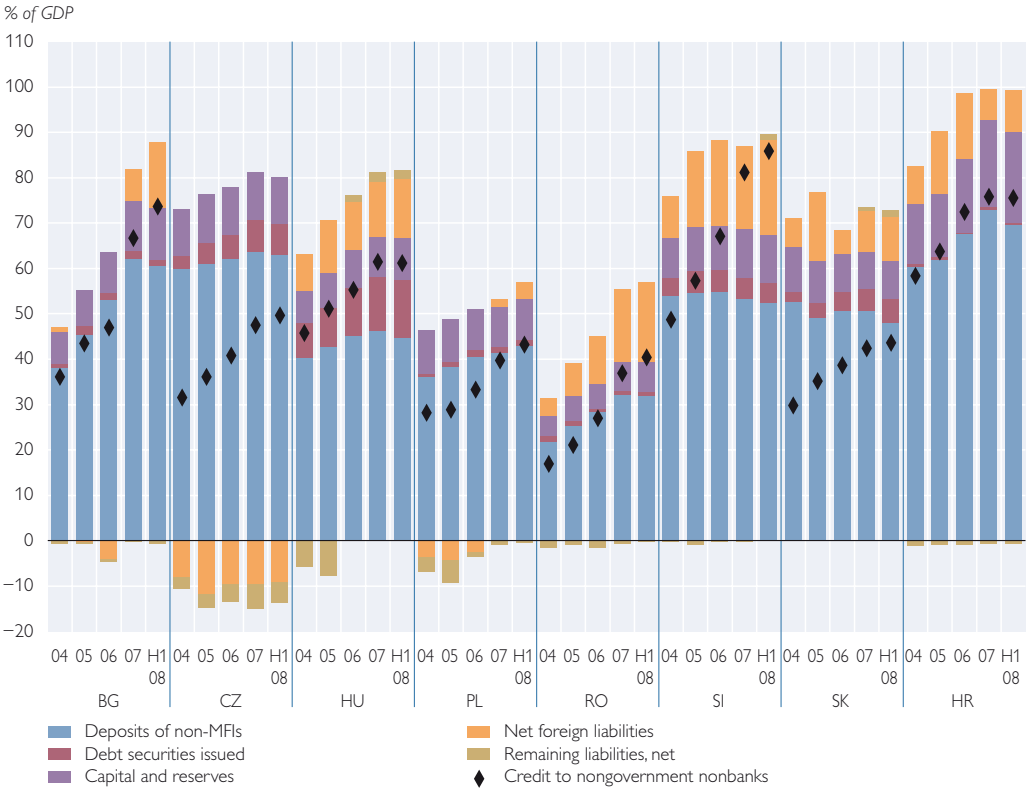
At mid-2008, domestic deposits[7] did not fully cover the stock of credit to the private nonbank sector, leading to a "funding gap" in the majority of countries (Bulgaria, Croatia, Hungary, Romania and Slovenia). In Croatia, Hungary and Slovenia this had been the case already for a longer period, while in Bulgaria and Romania strong credit growth pushed the level of credit above the level of domestic deposits only from 2007 onwards.

At the same time, banks in these five countries typically recorded large (Croatia: around 9% of GDP) or very large (Bulgaria, Hungary, Romania and

[7] *Deposits of nongovernment nonbanks plus deposits of local governments and other general government entities outside the central government.*

Chart 2

Private Sector Credit and Its Financing



Source: National central banks, OeNB.

Slovenia: between 13% and 21% of GDP) net external liabilities. This was in stark contrast to the euro area average, where banks maintained a small net external asset position at mid-2008. This euro area average is the result of the banking systems of most euro area countries maintaining positive (in some cases even huge) net external asset positions as a percentage of GDP. The most notable exemptions were the Portuguese and Italian banking systems with net external liabilities of around 40% and 10% of GDP, respectively, while the Greek and Spanish banking sectors had small net external liability positions at mid-2008.

Interestingly, however, funding gaps have not necessarily gone hand in hand with large net external liability positions in some countries. For example in Romania banks' net external liability position was substantially larger than the funding gap. Taking into account the high level of claims on the central bank it seems conceivable that the net liability position was in part a reflection of Romanian banks channelling through nonresident deposits into (high-yielding and low risk) central bank instruments. In a similar way, this may also be true for Slovakia, where banks had large claims on the central bank along with a large net external liability position despite domestic deposits that more than covered the domestic credit stock. By contrast, the net external liability position of banks in Slovenia was substantially smaller than the funding gap at the end of 2007.

This can be explained by the fact that Slovenian banks have financed the strong expansion of credit to domestic nongovernment nonbanks since early 2007 by financial resources that had been set free after the expiry of maturing sterilization instruments of Banka Slovenije in the wake of the adoption of the euro. In fact, since part of this additional liquidity was invested abroad, Slovenian banks' net foreign liabilities remained broadly unchanged between end-2006 and mid-2008 in spite of the sharp rise in the funding gap.

Two additional features distinguish the liability sides of CESEE banks' balance sheets from those of euro area banks.

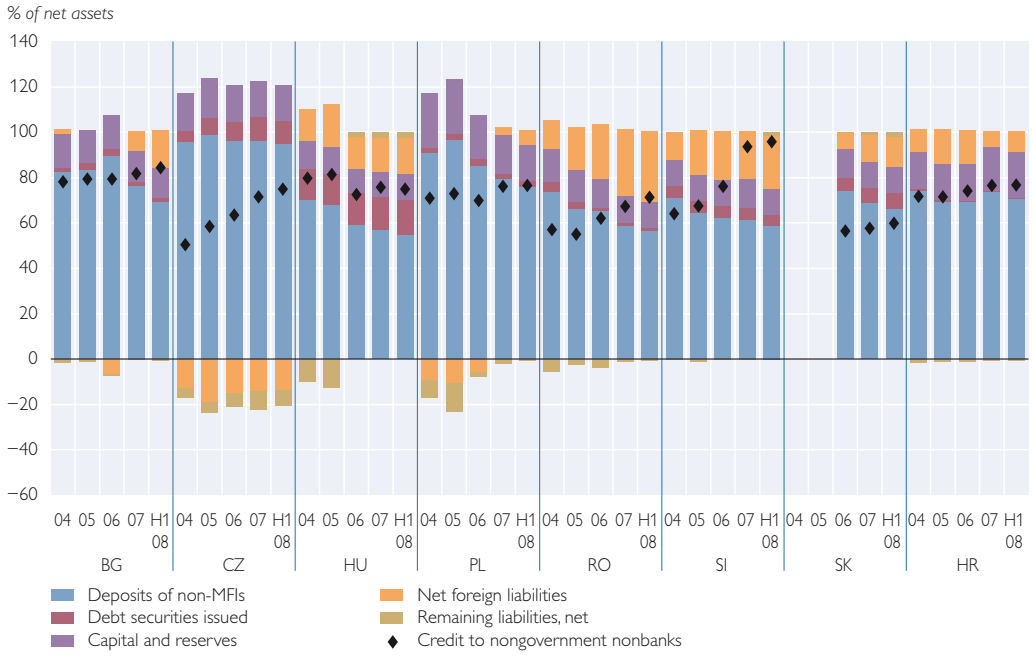
First, financing through capital and reserves plays a much more important role in several CESEE countries (most notably in Croatia, Poland and the Czech Republic) than in the euro area. The share of equity and reserves is somewhat higher than in the euro area in Bulgaria, while it is comparable to the euro area in Hungary, Slovakia and Romania. The stronger capital position in part reflects higher capital adequacy requirements in some CESEE countries compared to the euro area and should also be seen against the background of the presumably higher risks faced by CESEE banks. In addition, higher capital-to-asset ratios may be the result of the high level of foreign ownership in the CESEE banking sectors (except for Slovenia), with foreign owners providing a portion of financing to their subsidiaries in the form of equity capital.

Second, the issuance of debt securities is negligible in most CESEE countries, in sharp contrast to the euro area, where these instruments account for roughly one-third of banks' net assets.[8] This is an interesting feature, considering that in several CESEE countries (the Czech Republic, Poland, Slovakia and Croatia) housing loans, which can be assumed to be – to a large extent – mortgage-backed, accounted for roughly the same portion (22% to 30%) of total nonbank nongovernment credit as in the euro area (28%) at mid-2008, and even in the remaining four CESEE countries the share stood at 10% to 18%; in other words, the gap between these countries and the euro area in this field is much smaller than the difference in terms of the importance of issued securities. Again, this may very much be attributable to the high level of foreign ownership: Since foreign parent banks can probably issue debt securities on more favorable terms than their subsidiaries in CESEE, it is very likely that debt securities issuance is centralized within these banking groups at the headquarters. Debt securities issuance plays a more important role only in the Czech Republic and Hungary, but even in these two countries its relevance is much smaller than in the euro area. In addition, the relatively sizeable share in Hungary – where roughly two-thirds of the debt securities issued represented external debt of banks at end-2007 – can presumably be explained by the fact that the country's largest bank (OTP Bank) has no strategic foreign owner. By contrast, in the Czech Republic, banks' bond issuance has concentrated almost completely on the domestic market and it is deemed likely that it has been connected to the rapid development of housing loans (in our sample, the share of housing loans in total credit to households is highest in the Czech Republic, and its housing loans-to-GDP ratio is second only to

[8] *Net assets include credit to the general government net of central government deposits, net foreign liabilities and net remaining liabilities.*

Chart 3

Private Sector Credit and Its Financing



Source: National central banks, OeNB.

Note: Net assets include credit to the general government net of central government deposits, net foreign liabilities and net remaining liabilities.

Croatia). According to Česká národní banka, the issuance of mortgage bonds, which accounted for around 85% of total debt securities issued by banks at end-2007, has been motivated by tax benefits rather than asset liability management requirements (ČNB, 2007).

5 Banks' External Liabilities Are Dominated by Loans and Deposits

Turning more specifically to banks' external liabilities,[9] the following observations can be made. At end-2007[10] foreign liabilities were dominated by currency and deposits and/or loans in all countries under review. Long-term portfolio debt securities (bonds and notes) as a percentage of total external liabilities played a somewhat more important role only in Hungary. The country's biggest bank accounted for a significant portion of this debt, again probably due to the dispersed ownership of this bank. The low dependence on portfolio debt securities clearly distinguishes the countries in our sample from other emerging markets (e.g. Russia, Kazakhstan). This aspect should be borne in mind when assessing the potential adverse impact on the region's banks of increased risk premia and more difficult access to the international eurobond markets since mid-

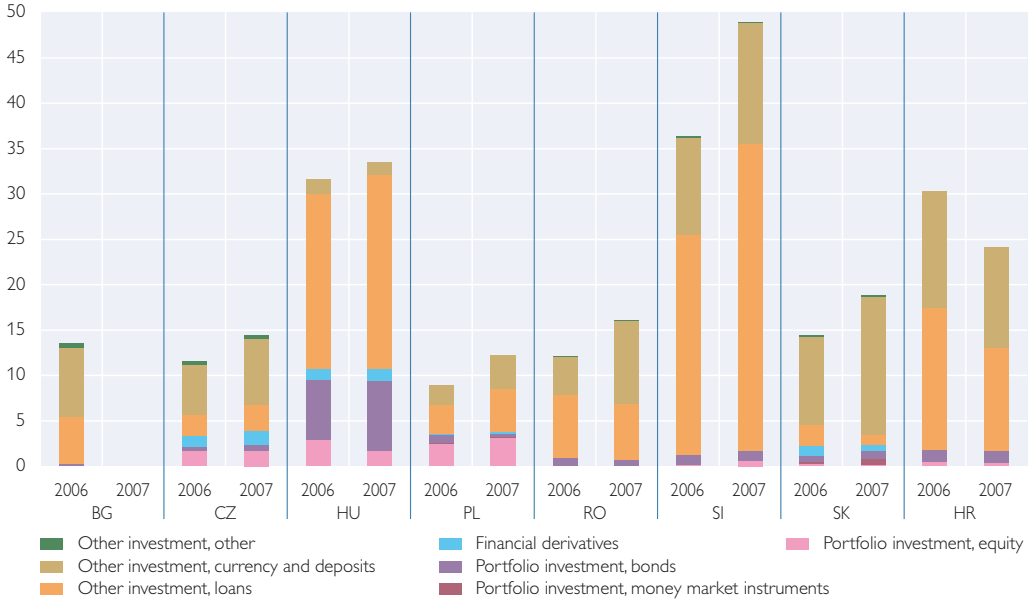
[9] *Concerning data issues it should be noted that while the stylized facts about banks' assets and liabilities were based on the aggregated balance sheets of monetary financial institutions (except monetary authorities), the detailed analysis of banks' external assets and liabilities draws on balance of payments, international investment position and BIS international banking statistics. Some differences between the two major datasets (aggregated balance sheets and international investment positions) concerning sectoral and instrumental delineation or accounting practices may exist, but this does not materially impede the major messages of the present analysis.*

[10] *For Bulgaria the latest available data are from end-2006.*

Chart 4

Structure of Banks' External Liabilities[1]

% of GDP, end of period



Source: IMF, OeNB.

[1] Excluding liabilities related to FDI.

2007. Banks' portfolio equity liabilities reached a non-negligible amount only in the Czech Republic, Hungary and Poland (i.e. the countries with the most liquid bank equity markets), which made these banks somewhat more exposed to equity price developments. Finally, according to IIP data, financial derivatives played a limited role in banks' external financing in most countries; only banks in the Czech Republic, Hungary and Slovakia relied somewhat more on these instruments.

The large currency and deposits and loan liabilities positions also include the financing of local subsidiaries by foreign parent banks. It is widely acknowledged in the financial literature that financing by parent banks plays a substantial role in the refinancing structure of banks in the CESEE region. Unfortunately, it is often not easy to substantiate these statements as there is no centralized, structured, publicly accessible dataset on this issue, and in most countries there is even a lack of information from national sources (such as financial stability or bank supervision reports). Sporadically available data (e.g. for Croatia, Hungary and Romania) suggest that financing from parent banks accounts for around 50% to 70% of the banking sector's external liabilities (HNB, 2007, MNB, 2008, and BNR, 2008). Some other central banks may not even possess more detailed information on what part of liabilities are liabilities against parent banks (e.g. NBP 2008).

6 Short-Term Funds Dominating in Some Countries

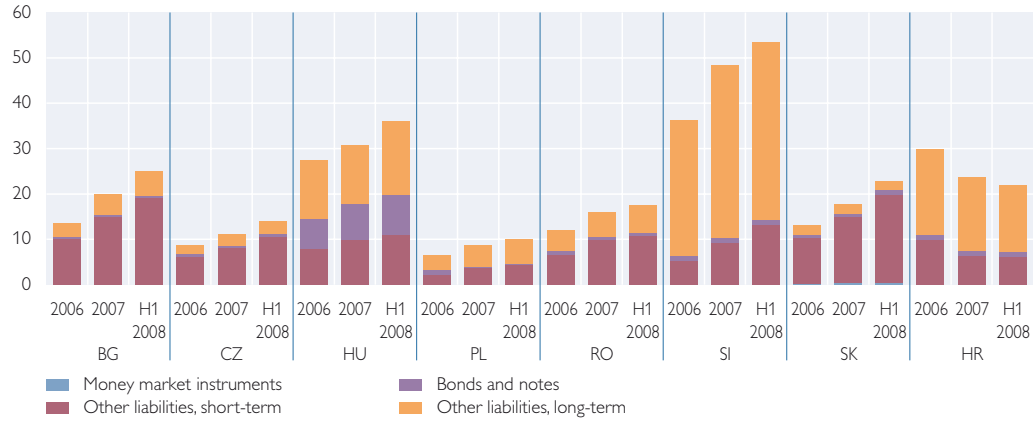
As far as the maturity structure of CESEE banks' external liabilities is concerned, short-term instruments (on the basis of original maturity)[11] had a

[11] *Information on banks' external debt on a residual maturity basis is not available.*

Chart 5

Structure of Banks' External Debt

% of GDP, end of period



Source: IMF, national central banks, OeNB.

very high share in banks' total external debt in Slovakia (87%), Bulgaria, the Czech Republic (both at around 75% to 77%) and Romania (62%) in mid-2008. The share was elevated also in Poland (45%), but comparably low in Hungary, Slovenia and Croatia (25% to 30%). Taking into account the overall level of debt, the high level of short-term indebtedness as a percentage of GDP seems a particularly relevant issue in Bulgaria and Slovakia (nearly 20% of GDP), followed by Slovenia (13%), the Czech Republic, Hungary and Romania (all three at around 11% of GDP). The share is rather low in Poland and Croatia (5% to 6%). Between end-2006 and mid-2008, the share of short-term debt both in banks' total external debt and as a percentage of GDP increased in all countries in our sample with the exception of Croatia. This increase, however, needs to be seen in a wider perspective, since it followed a decrease seen in 2006 in several countries with the exception of Bulgaria and Romania, where the short-term debt ratio has been on the rise since 2005. Moreover, the levels reached at mid-2008 were by no means "exceptional" in a multi-year comparison, with the notable exception of Slovenia, where similar levels had last been observed in 2000/01.

Any assessment of CESEE banks' external debt sustainability needs to be qualified very carefully due to serious data limitations. In addition to deficiencies regarding timeliness, the lack of important information in particular about residual maturities, the currency structure, interest rate fixation periods, risk hedging behavior with respect to market risk or the existence of ownership relations with creditors (e.g. parent banks) represent serious drawbacks to a fully-fledged analysis.

7 No Major Disruption of Foreign Capital Flows between Mid-2007 and Mid-2008

Apart from a rise in refinancing costs (which has been substantial in Bulgaria, Hungary, Romania and Croatia) and the shift towards short-term maturities, CESEE banks are also assumed to have been exposed to a potential reduction in capital inflows as a result of the recent international financial market turbulence. According to available balance of payments data (focusing on

Table 1

Selected Financial Account (BoP) Indicators[1]

	Q2 2008		Q1 2008		Q4 2007		Q3 2007	
	in % of GDP[2]	as a percentile of range[2]	in % of GDP[2]	as a percentile of range[2]	in % of GDP[2]	as a percentile of range[2]	in % of GDP[2]	as a percentile of range[2]
Other investment net, banks								
CZ	−4.8	28.2	1.0	76.1	−3.6	38.2	6.5	> than range
HU	6.6	60.5	2.5	38.8	−0.5	22.6	2.2	37.3
PL	7.8	99.1	1.1	27.8	3.5	53.0	4.2	60.7
SI	. .	. .	4.4	55.0	12.1	82.3	5.7	59.7
SK	. .	. .	. .	. .	2.6	43.3	0.8	40.4
BG	17.9	> than range	13.4	> than range	4.2	66.8	12.7	99.9
RO	6.0	87.8	5.7	83.5	5.7	82.4	14.8	> than range
HR	. .	. .	11.6	73.1	−1.3	47.2	−25.1	< than range
Other investment assets, banks								
CZ	−10.6	< than range	−5.7	18.7	−6.4	13.1	2.1	76.4
HU	−3.7	30.5	−4.4	25.4	−4.9	21.9	−1.2	48.0
PL	2.4	79.3	−1.3	4.5	0.2	35.5	−0.9	11.7
SI	. .	. .	−2.9	43.3	−10.2	< than range	−9.7	< than range
SK	. .	. .	. .	. .	−6.3	25.5	−2.0	55.5
BG	−6.4	39.7	10.4	> than range	−12.2	15.3	2.1	75.7
RO	−1.2	29.3	1.5	92.1	−1.8	15.6	3.1	> than range
HR	. .	. .	7.1	73.2	−6.1	22.7	−10.6	5.4
Other investment liabilities, banks								
CZ	5.8	> than range	6.7	> than range	2.8	75.7	4.5	89.9
HU	10.3	> than range	6.9	84.8	4.4	47.2	3.4	33.8
PL	5.4	> than range	2.4	57.1	3.2	74.5	5.1	> than range
SI	. .	. .	7.3	45.8	22.3	> than range	15.4	76.6
SK	. .	. .	. .	. .	8.9	52.0	2.9	42.1
BG	24.3	> than range	3.0	45.8	16.5	> than range	10.6	83.2
RO	7.2	> than range	4.2	55.6	7.5	> than range	11.7	> than range
HR	. .	. .	4.6	66.0	4.7	66.6	−14.5	3.8

Source: IMF, national central banks, OeNB.

[1] *The table presents capital flows with the sign customarily used in the financial account: In the case of assets a positive figure represents a decrease in holdings, and a negative figure represents an increase; for liabilities, a positive figure shows an increase, and a negative figure shows a decrease. Values in percent of GDP were calculated using four-quarter moving average GDP data to smooth out the seasonality of GDP.*

[2] *In % of quarterly GDP and as a percentile of the range of quarterly flows between Q1 2005 and Q2 2007.*

"other investment" flows as the most important item in CESEE banks' refinancing structure), no major peculiarities can be detected between mid-2007 and mid-2008, however. In fact, as far as data are available, net capital flows into the region arising from changes in banks' external assets and liabilities held up generally well during this period. Disaggregating net capital flows into flows in external assets and liabilities shows a satisfactory pattern as well. In particular, the increase in banks' external liabilities remained strong in the second half of 2007 and in the first half of 2008 (especially in the second quarter of 2008). At the same time it is remarkable that the accumulation of external assets was rather strong in several countries in the sample. This was particularly the case in the Czech Republic, where the accumulation of external assets was the major reason for the net outflow of other invest-

ment capital in the second quarter of 2008.

8 Will Capital Continue to Flow into CESEE Countries?

Information available for the second half of 2008 suggests that foreign capital inflows into some of the countries in our sample may have slowed or stalled.[12] For example, the collapse of the Hungarian government bond market, including a substantial decrease in foreign investors' holdings of government securities (between mid-September and end-October 2008 by around EUR 3.6 billion), the substantial decline in equity prices and the malfunctioning of the foreign exchange swap market (which is an important vehicle for Hungarian banks to obtain foreign currency liquidity and for foreign investors to obtain forint liquidity) in September and October 2008 can be taken as an indication of a slowdown in capital inflows. Furthermore, measures taken in other countries of the region (e.g. the activation of liquidity-providing repurchase operations in the Czech Republic or the Polish central bank's introduction of foreign exchange swaps to provide banks with foreign currency liquidity) may also reflect a decline in foreign capital inflows.

More generally, in order to ascertain the risk of a major slowdown or reversal of capital inflows into the CESEE region, it is crucial to identify potential triggers; four major areas may be distinguished:

First, a worsening in the assessment of the *region's risk-reward prospects,* in terms of both macroeconomic and financial aspects, could be one domestic reason for a slowdown or reversal of capital inflows. As to the macroeconomic prospects, according to the IMF's fall 2008 World Economic Outlook, the medium-term prospects have remained solid.[13] Following a cyclical slowdown in 2008/09, economic growth in the region is expected to pick up again from 2010 onwards and approach 5% on average. At this rate, output growth in the region would be roughly double as high as in the euro area and would be in line with world growth. More recent projections by various other forecasters (e.g. European Commission) have broadly confirmed this outlook.

Turning more specifically to banking sector prospects, the outlook for banking sector stability has not changed substantially since the outbreak of the financial market turbulence in mid-2007, according to Fitch Ratings' Banking System Indicator (BSI).[14] The BSI scores remained unchanged from the publication of the Bank Systemic Risk Report of March 2007 (i.e. before the crisis started) to the Report of October 2008 (latest available), with the exception of Slovakia, where the score was raised from "D" to "C" in September

[12] *For a further description of recent financial market developments in the CESEE region see the Reports section of this Financial Stability Report.*

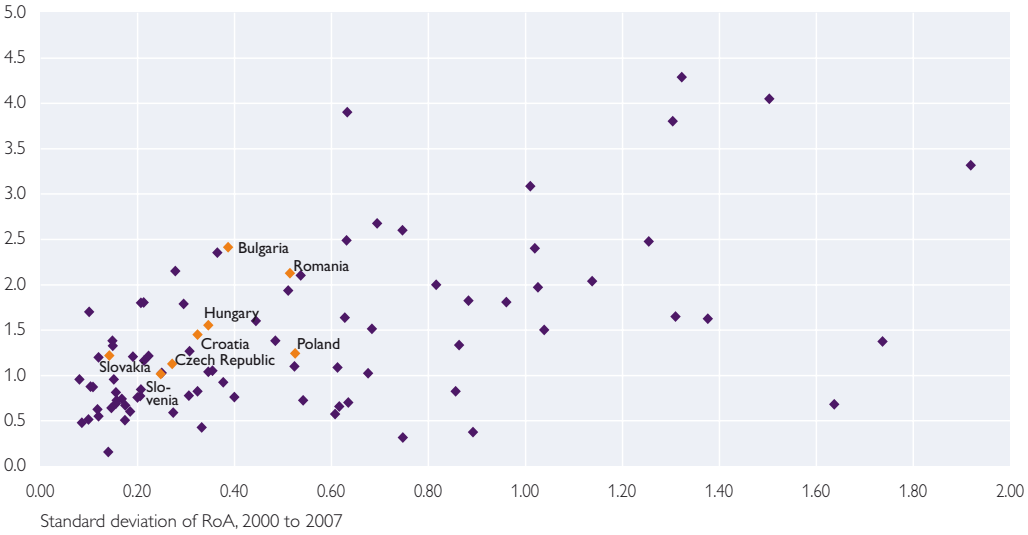
[13] *It should be noted that in its November 2008 Update of the WEO, the IMF lowered its forecast for 2009. This update, however, does not include any projections for the year 2010 and beyond.*

[14] *The Banking System Indicator is a measure of a banking system's intrinsic quality or strength, abstracting from potential support from shareholders or governments. The scale ranges from "A" (very high quality) to "E" (very low quality).*

Chart 6

Historical Bank Return-on-Assets and Its Volatility

%, average RoA, 2000 to 2007



Source: IMF, OeNB.

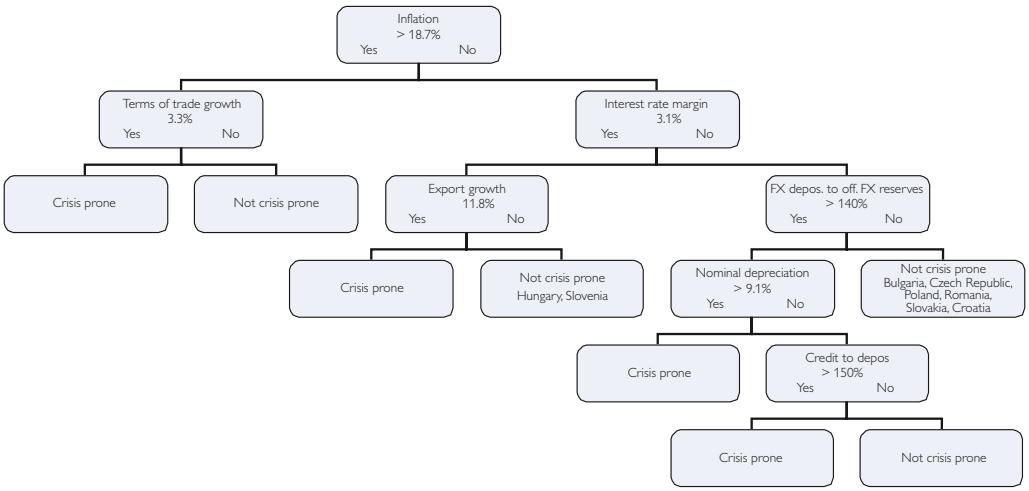
Note: A very small number of outliers to the right have been cut off to facilitate better presentation. Data for 2007 represent the latest available values.

2007, and Poland, where the score was raised from "D" to "C" in October 2008. According to the BSI, the banking sectors in the countries under review were attested low to medium strength (i.e. "D" and "C") in October 2008, with the exception of the Czech Republic, which was attributed high strength. This put the former at level with banking sectors in countries like Belgium, Brazil, China, Cyprus, India, Indonesia, Israel, Luxembourg, Malaysia, Malta, and Taiwan. In this context, it should be noted that the BSI scores do not take into account potential support from parent banks in the case of distress. However, with the foreign owners of most CESEE banks being generally regarded as pursuing long-term strategic goals, such support seems to be realistic, as long as parent banks are capable of providing such support (see below for a more detailed discussion).

Second, the banking sectors in the CESEE region need to be seen in a *global* context. Banks in the region may suffer directly from increased *risk aversion,* higher funding costs and lower liquidity in international financial markets even if the assessment of their individual risk-reward prospects remains unchanged. With the CESEE countries still being considered as emerging markets, they may also fall victim to a crisis elsewhere in the emerging market universe, which actually materialized for some CESEE countries during October 2008. Fortunately, however, insofar as historical performance can be taken as a yardstick, the medium-term outlook for the financial systems in the countries under review appears rather reassuring. Plotting return-on-assets against its volatility for the period 2000 to 2007 in a sample of around 100 countries worldwide puts the countries under review into a comfortable posi-

Chart 7

Early Warning System for Banking Crises



Source: Duttagupta and Cashin (2008), national central banks, Thomson Financial, OeNB.

tion of solid profitability with relatively low volatility.

Similarly, taking Austrian banking groups as an example, the profitability (return on assets) of CEE business constantly exceeded the profitability of business in Austria and the rest of the world by a large margin in the past five years, even as measured against risk-weighted assets (as opposed to total assets). As a result, the share of the CEE business segment in the operating result of Austrian banks by far surpassed the share of the CEE business segment in the total banking sector assets in the past few years. Finally, the application of an early warning system for banking crises developed by Duttagupta and Cashin (2008) indicates that the countries under review will not face a banking crisis in the near term (based on end-2007 data).[15] However, it needs to be borne in mind that early warning models for banking crises sometimes deliver conflicting results with respect to the signaling power of individual indicators. At the same time, it is difficult to evaluate the comparative performance of these models, given that they use different historical datasets, different dependent variables and methodologies (compare Duttagupta and Cashin, 2008, and Davis and Karim, 2008).

Third, another trigger for a sudden stop or a reversal of capital flows to CESEE banks could emanate from *difficulties arising at local institutions' foreign parent banks*. In this respect, BIS data on consolidated foreign claims (i.e. cross-border claims plus local claims of local subsidiaries in all currencies) of BIS reporting banks on the countries under review reveal a high concentration of creditors in only a few Western European countries and con-

[15] *Based on 2007 data; the model is designed to predict a banking crisis in the year of the data and the year after.*

Table 2

Consolidated Foreign Claims[1]

Common Creditor Matrix

In %, mid-2008

	CZ	HU	PL	SK	SI	BG	RO	HR
CZ	100.0							
HU	69.8	100.0						
PL	46.0	69.4	100.0					
SK	72.5	74.4	56.1	100.0				
SI	63.9	89.2	62.3	70.0	100.0			
BG	53.2	65.9	54.7	59.3	59.2	100.0		
RO	63.8	53.7	42.1	69.8	51.6	61.6	100.0	
HR	54.5	74.6	46.8	65.4	76.7	60.3	52.3	100.0

Contribution of Austrian Banks to Common Creditor Values[2]

In percentage points, end-2007

	CZ	HU	PL	SK	SI	BG	RO	HR
CZ	*30.2*							
HU	25.1	*24.7*						
PL	4.6	4.2	*5.3*					
SK	28.6	23.1	3.0	*39.0*				
SI	26.3	24.7	2.7	26.4	*24.6*			
BG	18.0	16.8	3.4	16.9	14.7	*14.5*		
RO	29.3	24.1	3.6	38.5	27.2	18.0	*38.6*	
HR	28.6	24.3	3.3	28.1	25.2	16.3	29.0	*28.2*

Source: BIS, OeNB.

[1] Cross-border claims plus local claims of local subsidiaries in all currencies on an ultimate risk basis.
[2] The values in italic represent the share of Austrian creditors in total consolidated foreign claims on the respective country.

siderable common creditor issues.[16,17] In particular, residents of the Czech Republic, Croatia and Hungary tend to share creditor countries with residents of other countries in the region (e.g. around 89% of claims on Hungarian and Slovenian residents are owed to banks in the same countries). Not surprisingly, Austrian creditors account for a considerable portion of total claims on residents of these countries.

[16] The data refer to consolidated foreign claims on an ultimate risk basis on all residents in the respective countries. Data broken down by borrowers' economic sector are not available. The data are consolidated so that intra-group financial claims are netted out. Nonetheless, the figures can be taken as indicative of the existence of common creditor issues for the banking sectors of the region as well.

[17] The calculation of common creditors follows the methodology of Rijckeghem and Weder (1999) and Glick and Rose (1998). The index is calculated as

$$I_{0,i} = \sum_{k=1}^{n} \left(\frac{B_{0,k} + B_{i,k}}{B_0 + B_i} \right) \left[1 - \left(\frac{\frac{B_{0,k}}{B_0} - \frac{B_{i,k}}{B_i}}{\frac{B_{0,k}}{B_0} + \frac{B_{i,k}}{B_i}} \right) \right]$$

where B is the nominal value of claims, 0 indicates the reference country, i indicates another target country and k indicates common creditor countries. The index can take values between 0 and 1, with a higher value representing greater commonness in creditors. The calculation was made on the basis of 18 creditor countries (Australia, Austria, Belgium, Canada, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States).

For contagion issues to become relevant in the region the financial standing of parent and sister banks as well as the ability and willingness of parent banks to finance their subsidiaries is of crucial importance. For example, if parent banks faced financial difficulties they might opt to reduce financing to their foreign subsidiaries, for instance, to have sufficient resources for their home business; or they may even have no other choice. Also, parent banks may channel funds from a foreign subsidiary to other parts of the banking group (to the parent bank or to another subsidiary).[18]

According to available information, the direct exposure of the major players in the CESEE region to the U.S. subprime market has been low. These large banks could, however, become affected by the international turmoil through the interbank market or the capital market via rising refinancing costs and/or the tightening of liquidity conditions. In this context, it is remarkable that – broadly speaking – the stock prices of banks with a significant exposure to the CESEE region performed roughly in line with the overall FTSE Developed European banks index until late summer 2008. From September onwards, and especially in October, the stock prices of these banks substantially underperformed the overall FTSE Developed European banks index. However, in late October and early November banks with CEE exposure again started to outperform the overall market. This pattern clearly coincided with the spreading of the international financial crisis to several emerging European economies, as evidenced by the significant rise in sovereign eurobond spreads and CDS premia as well as exchange rate weakening starting in the second half of September and the fledgling recovery seen in late October (on the back of stepped-up financial support for selected emerging markets from international organizations like the IMF, the EU or the World Bank).[19] A similar pattern could be observed for the CDS premia of banking groups active in the region.

It would go beyond the scope of this paper to discuss the factors driving the stock prices and risk premia of foreign parent banks. It should be noted, however, that a positive feedback loop may arise if a deterioration in the economic environment in the CESEE region leads to a worsening of the refinancing conditions of foreign parent banks, which in turn are forced to cut back lending to the CESEE region, further aggravating economic difficulties, etc.

In this respect, the strategic orientation of most foreign parent banks towards the CESEE region offers some reassurance. Although there is historical precedence that a foreign parent bank walked away from its troubled subsidiary in the region, these cases have been scarce and retrospectively often pitied exceptions (e.g. BayernLB). There are plenty counterexamples, however, such as the Austrian banks that stayed in Russia through the crisis period in 1998. In addition, as pointed out before, the historical performance of CESEE banks over the past few years

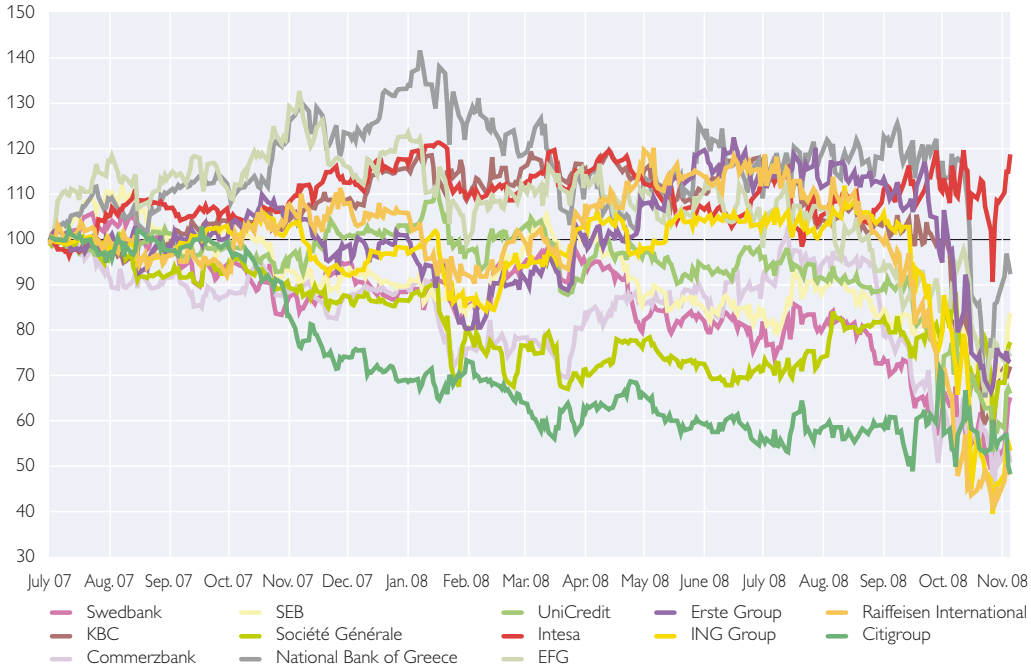
[18] *Likewise, it may well be that the increase in the banking sectors' foreign assets seen in several countries in our sample during the first half of 2008 was influenced by increased deposits of local subsidiaries at their parent institutions.*

[19] *It should be noted, however, that the performance of stock prices of individual banks with the overall FTSE Developed European banks index gives only a rough assessment of the relative performance of individual banks (e.g. the stock prices of individual banks may be influenced by country-specific as opposed to company-specific factors, or the existence of potential outliers in the overall market index).*

Chart 8

Bank Equity Prices

Performance relative to FTSE Developed Europe bank index; June 29, 2007=100.0

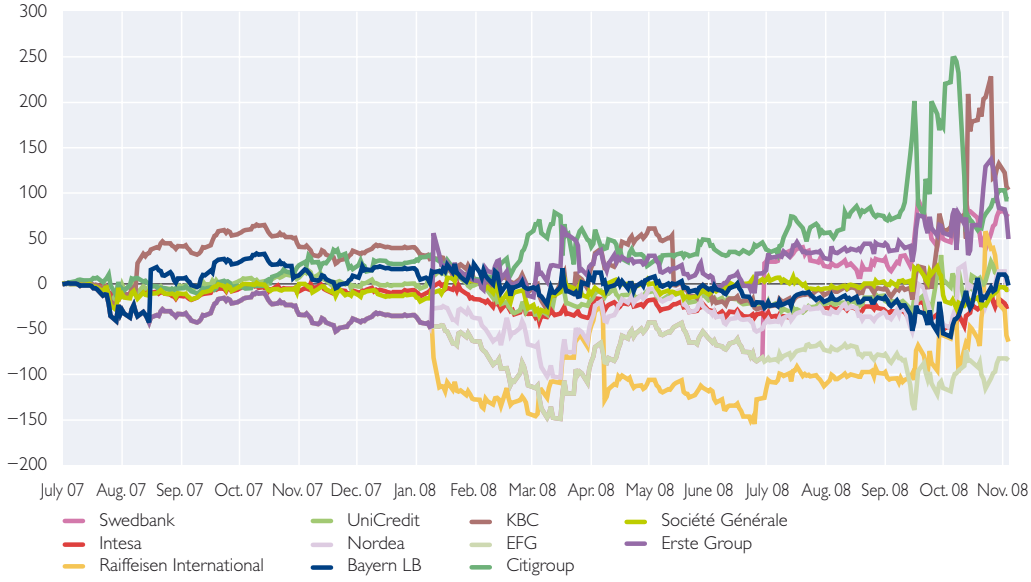


Source: Thomson Financial, OeNB.

Chart 9

Five-Year CDS Premia of Banks

Change in CDS premia in basis points compared to June 29, 2007; performance relative to CMA ITRAXX European Union Financial index



Source: Thomson Financial, OeNB.

in terms of risk-adjusted returns puts them into a comfortable position should parent banks be forced to ration credit within the banking group.

Fourth and finally, it should be borne in mind that contagion may also arise if *problems occur at sister banks* and, stress spreads to other institutions within the banking group through the parent bank (e.g. through adverse effects on the parent bank's liquidity or capital adequacy). These interlinkages strongly suggest that a prudential analysis of the banking sector in any of the CESEE countries needs to be complemented by a regional approach, putting special emphasis on the shock-absorbing capacity of parent banks that are active in a large number of countries either by direct cross-border business or via local subsidiaries or branch offices.

9 What If Capital Inflows Do Slow Down?

A decline in the amount of external funding to CESEE banks would likely lead to a slowdown in their lending activity. Initially – and if external financing moderates smoothly – this may be a welcome development in those countries that currently face the threat of overheating (e.g. Bulgaria, Romania); a similar development is already underway in the Baltic countries. Insofar as slower credit growth would go hand in hand with a reduction in external and internal imbalances, an orderly decline in capital inflows may provide economic policymakers with the "solution" they lacked before, maybe because they did not have the will or ability to tighten fiscal and wage policies and/or there was not sufficient leeway for monetary and prudential policy action, given explicit or implicit exchange rate policy goals, open capital accounts and – within the European Union – the single banking passport.

However, the risk of a disorderly reduction of external financing increased in early October 2008. In addition, IMF-led rescue packages for a few CESEE countries launched more recently also contain such risks. Nevertheless, a sudden stop or reversal of capital inflows would probably have more serious financial and economic consequences, depending – inter alia – on banks' risk management practices during the preceding domestic credit boom (and thus the quality of their CESEE loan portfolio and the magnitude of the accumulated loss potential including the shock resistance of their clients against an economic slowdown).

At the same time, CESEE banks may also have some buffers to at least partially accommodate decreasing external funding. First, for example, banks in the countries under review – with the notable exception of Romania – possess large volumes of external assets both as a percentage of GDP and relative to external liabilities, at least on an aggregated level. Insofar as holders of external assets and liabilities overlap at the level of individual banks (which would seem to be a reasonable assumption, taking into account liquidity management considerations and regulations), banks could respond to lower external funding volumes by reducing their external assets.

Second, at least in some countries, funds currently held in the sterilization facilities of central banks could be redirected to finance credit to other domestic sectors, if external funding were to decrease. Obviously, however, such restructuring on banks' asset side would have significant implications for their risk profile (most notably concerning credit and liquidity risk) and thus on their capital adequacy, which ultimately poses a limit on such substi-

tution. Still, the current high levels of capital adequacy and good profitability (in itself a source of bolstering the capital base) provide a good starting point.

Third, in countries where the authorities responded to the rapid accumulation of the external debt of banks by administrative measures (e.g. Croatia), a decrease in external funding would kick-start some "automatic stabilization" by freeing up funds from mandatory reserves currently held with the central bank.[20]

Fourth, a more pro-active economic policy reaction to a potential severe disruption of capital inflows – in addition to "preparing for the worst" in the form of contingency liquidity planning – would be a reduction in general governments' financing needs, thereby freeing up financial resources for credit to the private sector ("crowding-in"). In this respect, the comprehensive measures taken in Hungary since the beginning of October serve as a case in point. In response to substantial market tensions, the government stepped up its fiscal consolidation efforts, while at the same time the central bank took the necessary steps to increase interbank liquidity (both in local currency and in euro). Also, measures have been taken to boost the local government bond market (by easing asset allocation rules for pension funds, government bond purchase auctions by the central bank), and confidence in the banking sector has been bolstered by the increase in deposit insurance limits.

10 Concluding Remarks

In this paper, we presented systematic regional and cross-country information about the refinancing structure of the banking sector in selected CESEE countries, benchmarking the region against the euro area and, where appropriate, against non-European emerging market economies. Our goal has been to present most recent data to focus on the situation of banks in these countries before external funding conditions started to deteriorate significantly for some of them in the second half of 2008.

Our findings confirm that banks in several CESEE countries strongly relied on funding from abroad to finance strong domestic lending activity over the past few years. This is in particular true for Croatia, Bulgaria, Hungary, Romania and Slovenia. This reliance on external resources made banks increasingly vulnerable to global financial turbulence such as the turmoil experienced since mid-2007. The external funding of banks in the countries of our sample predominantly took the form of deposits and loans, while reliance on portfolio capital was rather modest. Portfolio debt liabilities as a percentage of total external liabilities played a more important role only in Hungary, while portfolio equity liabilities reached non-negligible levels in the Czech Republic, Hungary and Poland, i.e. the three countries with the biggest and most liquid equity markets in the sample.

Data until mid-2008 suggest that banks in the countries under review have not faced substantial difficulties in maintaining a solid inflow of foreign capital. The nature of their refinancing structure (e.g. a strong capital base, limited reliance on capital markets,

[20] *In fact, the Croatian central bank abolished the so-called marginal reserve requirement (i.e. an additional reserve requirement which had been introduced to curb strong foreign borrowing by banks) on October 10, 2008, to boost banks' foreign exchange liquidity and enable them to meet commitments to clients without any difficulties.*

substantial funding from foreign parent banks with a strong commitment to the region) and solid profitability in an international comparison (apparently also on a risk-adjusted basis) have likely played an important role in this context.

This notwithstanding, there is no room for complacency. There is no end to the global financial market distress in sight, and major international banks continue deleveraging. Substantial increases in risk premia and the deterioration in interbank liquidity suggest that during September and October 2008 financing conditions turned much worse for banks in some countries of our sample – most prominently in Hungary. Today banks in the CESEE region are facing substantially higher refinancing costs than before mid-2007 and – given the large share of short-term instruments in total external debt of banks in many countries – considerable rollover risk. In future the evolution of the financial standing of foreign parent and sister banks and the ability and willingness of parent banks to finance their subsidiaries in the CESEE region will be key to capital flows into the region. The long-term commitment of foreign parent banks to their (highly profitable) CESEE subsidiaries is reassuring. At the same time, refinancing risks are aggravated by the potential for contagion, as a relatively small number of regionally active Western European banks provide the bulk of external funding to a large number of recipient countries in the region. In an environment of potentially increased rationing of available financial resources, ensuring attractive return prospects remains essential. To this end emphasis should be put on stability-oriented macro-economic and financial market policies. Such policies are also a precondition for financial support from international (financial) organizations, should the need for such support arise.

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ICAAP Implementation in Austria's Major Banks

Elisabeth Woschnagg[1]

While Pillar 1 of the regulatory capital framework Basel II stipulates capital requirements for credit, market and operational risk, Pillar 2 focuses on the economic and internal perspective of banks' capital adequacy.

To ensure capital adequacy, banks are required to have an Internal Capital Adequacy Assessment Process (ICAAP) in place that enables them to identify, measure and aggregate all material risk types and calculate the economic, or internal, capital necessary to cover these risks. In addition to this, banks should actively manage their overall risk profile.

The ICAAP is essential to the preservation of financial stability and will be subject to a higher degree of supervisory scrutiny in the near future. Under the principle of proportionality, requirements for the ICAAP are in line with banks' specific characteristics and business models. As a result, a variety of approaches is in use.

This paper provides a summary of the information Austria's eight largest banks (in terms of systemic importance) have to date published on this subject (e.g. annual reports and specific documents in line with disclosure requirements).

JEL classification: G21, G28, G32
Keywords: capital adequacy, risk-bearing capacity, economic capital, Basel II, Pillar 2, ICAAP, large Austrian banks, risk management

1 Introduction

The three-pillar Basel II Framework on capital requirements and capital adequacy requires banks to measure credit, market and operational risk in accordance with regulatory provisions and to back these risks with capital (Pillar 1). Under Pillar 2, banks are additionally required to back all material risk types with internal (economic) capital in order to ensure capital adequacy (Internal Capital Adequacy Assessment Process – ICAAP). Pillar 3 strengthens market discipline via public disclosure requirements.

Hence, the ICAAP is also an essential element of preserving financial stability and will, in the near future, be subject to a higher degree of supervisory scrutiny. The ICAAP requires banks to implement processes to identify all risks that may affect them, measure and aggregate these risks and back them with adequate internal capital. In another step, banks are required to integrate overall risk management into their business operations.

The recent turbulence in the international money and capital markets has particularly underscored the need for comprehensive risk management systems.

In accordance with the principle of proportionality, banks have been given much leeway in implementing the ICAAP so as to allow every bank to use the processes that best suit its specific situation and business model. Different requirements naturally entail a variety of approaches.

In order to create transparency for all stakeholders, banks are obliged to publish specific information to meet disclosure requirements.

This paper attempts to provide selected qualitative information about the procedures Austria's eight largest, i.e. systemically most important, banks use to assess capital adequacy (pursuant to Article 39a of the Austrian Banking

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Act). The information stems solely from publications (e.g. 2007 annual reports and specific documents in line with disclosure requirements).

Section 1 continues with a brief explanation of the ICAAP. The introduction also describes which credit institutions are regarded as the eight systemically most important banks, as the banks under review were chosen based on this criterion.

Section 2, the main part of this paper, deals with the implementation of the ICAAP in the banks under review. In short, based on an analysis of the banks' publications, the paper sheds light on how the banks, broadly speaking, assess capital adequacy. The following questions will be answered, provided that they are addressed in the published documents:

- Which risk types have been defined?
- Which risk types have been quantified by the banks under review?
- Which risk quantification methods are used?
- Which risk aggregation methods are used?
- How do the banks define economic capital?
- What is the composition of the risk coverage potential?
- What are the characteristics of the risk-bearing capacity analyses?
- How is bank-wide (risk) management performed (use of risk-adjusted performance measures, capital allocation methods)?

Since annual reports (risk reports) include only selected information, this study, which relies exclusively on publicly disclosed information, does not provide a comprehensive picture of the capital adequacy procedures used by the banks under review.

Besides, risk reports often take a broadbrush approach to the calculation of regulatory and economic capital, which makes it difficult to distinguish between the two approaches. This is partly due to the fact that the methods for determining regulatory capital requirements are (temporarily) also used to calculate the economic capital.

This study concludes with information about the status of the ICAAP implementation process and about future challenges to banks' management of their overall risk profile.

1.1 Legal Basis

The Basel II Framework prepared by the Basel Committee on Banking Supervision ("International Convergence of Capital Measurement and Capital Standards") serves as the basis for the ICAAP. The EU Directives 2006/48/EC (Capital Requirements Directive – CRD)[2] and 2006/49/EC (Capital Adequacy Directive – CAD) made these capital standards legally binding. The provisions relevant to ICAAP implementation in Austria were transposed into national law by incorporating them mostly into Article 39 (due diligence obligations) and Article 39a (internal capital adequacy assessment process) of the Austrian Banking Act.

To provide further guidance for credit institutions, CEBS (2006) published ten principles for the implementation of a consistent and comprehensive ICAAP. Banks should fully specify and document the ICAAP, integrate it into ongoing management processes ("use test") and regularly review its

[2] *The following articles of the CRD are especially relevant for Pillar 2: Article 22 and Annex V (administration and banks' control procedures), Article 123 (Internal Capital Adequacy Assessment Process ICAAP), Article 124 and Annex XI (supervisory review and evaluation procedures) as well as Article 136 (regulatory measures).*

adequacy. The ICAAP should also be risk-based, comprehensive and forward-looking. It should furthermore produce a reasonable outcome and be based on adequate risk measurement and assessment methods. Institutions take full responsibility for their ICAAP, which they may tailor to their specific circumstances and needs in line with the principle of proportionality.

1.2 Selection of Banks under Review

The eight banks analyzed in this study were selected in accordance with their systemic importance. Following the principle of proportionality, the ICAAP is a more demanding process for large banks, which is why they can be expected to conduct a more comprehensive risk analysis than small credit institutions.

Box 1

The Eight Systemically Most Important Austrian Banks[1]

The table below shows a ranking of the ten largest Austrian banks by total assets as per their 2007 financial statements. In terms of systemic relevance, Kommunalkredit Austria AG (as part of the consolidated 2007 financial statements of Österreichische Volksbanken AG) and Oesterreichische Kontrollbank AG are not counted among the eight largest banks.

Table 1

Ten largest Austrian banks by total assets as per their 2007 financial statements

	Total Assets
	EUR million
Bank Austria Creditanstalt AG	209.170
Erste Bank der oesterreichischen Sparkassen AG	200.519
Raiffeisen Zentralbank Österreich Aktiengesellschaft	137.402
Österreichische Volksbanken-Aktiengesellschaft	78.641
BAWAG P.S.K. Bank für Arbeit und Wirtschaft und Österreichische Postsparkasse Aktiengesellschaft	44.847
Hypo Alpe-Adria-Bank International AG	37.939
(Oesterreichische Kontrollbank AG	33.019)
(Kommunalkredit Austria AG	24.919)
Raiffeisenlandesbank Oberösterreich Aktiengesellschaft	25.267
Raiffeisenlandesbank Niederösterreich-Wien AG	19.554

Source: OeNB.

[1] *A ranking of the top 9 to 39 banks also exists.*

2 ICAAP Implementation by Austria's Major Banks

2.1 Definition of Risk Types

Identifying risk types is the first step in assessing the relevance of risks and the need for their systematic recording. Under Pillar 1, three risk types – market risk, credit risk and operational risk – need to be captured. These risks must therefore be defined.

Pillar 2 requires that additional risk types be taken into consideration. Article 39 para 2b of the Austrian Banking Act itemizes ten risk types the ICAAP should address in particular.

The definitions of the risks under review differ because the number of defined risk types can vary from bank to bank and risks may be defined in a broad or narrow sense.

Generally speaking, it is evident that processes banks had put in place in recent years to comply with Pillar 1 have impacted on the implementation of Pillar 2 requirements. As a case in point, operational risk has, in most cases, been defined consistently in line with the Austrian Banking Act. Consistent definitions also apply to market risk arising from the trading book and the banking book. However, market risks in the banking book (interest rate risk in the banking book) are additionally treated separately in banks' annual reports. Equity price risk, foreign exchange risk and interest rate risk are by definition consistently subsumed in the market risk category.

Banks providing information about credit risk in their annual reports use differing definitions of the respective subtypes. Borrower default risk, as opposed to counterparty risk, is consistently defined as credit risk. Credit migration risk (rating downgrade risk) is not consistently classified as a credit risk in banks' ICAAP. In five of the eight cases, country risk is explicitly considered an inherent part of credit risk.

The turbulence in international money and capital markets starting in mid-2007 is characterized by contracted liquidity in global credit markets and banking systems and has put the spotlight on liquidity risk. Three banks categorize liquidity risk by maturity, i.e. short-, medium- and long-term, buckets. Five banks subdivide this risk category into a narrow definition of liquidity risk (insolvency risk) and refinancing risk (structural risk). Especially in the case of liquidity risks, clear-cut distinctions are difficult to make (e.g. between structural and long-term liquidity risk).

Equity investment risk (participations) has been defined as a separate risk type by six of the eight banks. Three banks each mention business and real estate risks. The banks under review have a different understanding of the "other risks" category. Other risks may include strategic risk, reputation risk, equity risk, business risk and earnings risk.

2.2 Risk Type Quantification

In order to measure risk, it needs to be categorized as a certain risk type first. However, not all identified risk types are relevant for a given credit institution. Under Pillar 2, all material risk types need to be quantified and backed with an adequate amount of economic capital. Some risk types are difficult to measure precisely, e.g. other risks (reputation risk, strategic risk). For such risks, banks should have a process in place for qualitatively estimating the respective capital charges. Under certain circumstances, it might not make sense to allocate economic capital to a particular risk type, e.g. in the case of liquidity risk when the composition of the portfolio's maturity structure is at issue.

The value at risk (VaR) method has become the market standard or best practice for measuring risk in the banking industry. One of the eight banks under review additionally uses the expected shortfall[4] (with the same one-sided confidence level as for the VaR) as a stress testing indicator.

The banks use the VaR method for measuring credit risk. Compliance with the regulatory capital require-

[4] *The expected shortfall, also called conditional VaR, is the expected value of loss exceeding (and including) the value of loss for the respective one-sided confidence level.*

ments may thus serve as a basis for internal calculations. The holding period selected for the VaR method is one year, and the one-sided confidence levels are usually set at 95%, 99%, 99.9% or, in most cases, at 99.95%, according to the banks' 2007 annual reports. Three banks explicitly mention using a third-party portfolio program (a modification of CreditRisk+[5] and CreditManager,[6] an enhanced version of CreditMetricsTM) for default risks. Portfolio models may rely on (modified) results from internal ratings. One credit institution stated that it was planning to switch to the advanced IRB (AIRB) approach for supervisory purposes in 2008, applying it also to its non-retail portfolio, which needs to be treated with the AIRB under the IRB anyhow. Four banks indicated that they were either using or intending to use the foundation IRB (FIRB) approach for their non-retail portfolio.

According to the 2007 annual reports, counterparty credit risk is addressed under credit risk in five cases, while two credit institutions quantify counterparty credit risk separately. Regarding country risk, all banks under review indicate that they assess this risk under credit risk or that they use a dedicated country rating model.

To measure market risk,[7] all banks rely on VaR methods. Here, they also draw on results from their internal models used for regulatory purposes. In their respective annual reports, four of the eight banks explicitly state that they use an internal market risk model for supervisory purposes. Different parameters are used for the VaR calculation of market risk. While the holding periods of one or ten days are based on supervisory requirements, assumed holding periods of one month and one year are also in use. One-year holding periods are used to achieve a consistent scaling for the risk-bearing capacity analysis. All the banks that provide information on this subject in their annual reports set the one-sided confidence levels at 99%; sometimes parallel calculations are based on higher levels, such as 99.95%. According to the annual reports, one credit institution employs a proprietary model for market risk quantification, and at least three other banks use the KVaR+[8] model. Both (Monte Carlo and historical) simulations and variance covariance approaches are used.

VaR methods are also being increasingly adopted for measuring operational risk, and banks are stepping up the capture of loss data. To meet Pillar 1 requirements, one bank uses the Advanced Measurement Approach (AMA), and two banks indicate that they use the Standardized Approach in 2008. Four banks indicate that they use the Basic Indicator Approach in 2008. In the annual reports, there is no mention of major differences between banks' internal models and regulatory models.

Regarding the treatment of liquidity risks, using a liquidity/funding matrix, i.e. a breakdown of residual maturity, has become the market standard (liquidity gap analysis). Unknown maturities are modeled accordingly in the

[5] *For a description of this model, see Credit Suisse First Boston International (1997).*

[6] *See J.P. Morgan (1997) for a description of the CreditMetricsTM model; for a brief description of CreditManager, see RiskMetrics Group (2008).*

[7] *No distinction is made between risks in the trading book and in the banking book.*

[8] *For a brief description of this model, see Reuters (2007).*

funding matrix to identify liquidity gaps. Banks usually distinguish between short-term and medium-term or long-term maturities or between structural and nonstructural liquidity (liquidity risk in the narrower sense). Periods of 1 week, 1 month, but sometimes also 2 weeks or 60 days are considered short-term maturities. Medium- and long-term maturities are usually defined as periods ranging from 3 months to more than 15 years. However, most reference maturities range between 1 and 5 years. Liquidity/funding matrixes (on a solo and consolidated basis) may be drawn up for different currencies, liability types or for a normal situation/crisis situation scenario. Consideration has to be given to the corporate structure of banking groups with regard to intercompany liquidity transfers.

As mentioned above, all eight banks under review classify interest rate risk in the banking book as a market risk. Applying the value at risk method to this risk type has hence become standard practice. All eight banks use a one-sided confidence level of 99% and a holding period of 1 day, 10 days or 1 month. Gap analysis is also used consistently, namely for more than five currencies and for a minimum of four maturity bands. Furthermore, the analysis of stress scenarios (twists and shifts of the yield curve) is an integral part of interest rate risk analysis. One credit institution explicitly mentions special indicator analyses.

In their treatment of concentration risks, the banks often identify concentrations by breaking down the exposure by industries. If concentrations become evident, stress tests are used to identify increased sensitivity to certain factors. Risk concentrations are also identified with the credit risk model, provided that it comprises concentration risks.

Two banks each use the VaR to model business risk and equity investment risk (one-year holding period, one-sided confidence level of 99.95%). One bank classifies business risk under other risks (but plans to use the VaR for quantification) and backs it with a capital buffer. Unless the VaR method is used, equity investment risk is addressed e.g. in connection with credit risk, via expert ratings, strategic analyses or debt ratings. For these two risk types no consistently used standard has manifested itself to date.

Real estate risks are explicitly addressed in three of the annual reports under review. In one case, this risk is quantified with the VaR method, and in the two other cases, it is incorporated into credit risk or other market risks.

Three credit institutions treat other risks as a separate category, taking them into account in their risk-bearing capacity analyses. Since these risks are difficult or impossible to quantify, banks use qualitative estimations instead.

2.3 Risk Scaling and Aggregation

A consistent risk measure for all risk types is a prerequisite for meaningful risk aggregation. As mentioned above, the VaR is a commonly used risk measure, even though it is, unlike other risk measures (e.g. the expected shortfall), not subadditive and therefore not a coherent risk measure.[9] In order to reach consistent scaling for the VaR parameters, it is necessary to provide a consistent basis for both the time hori-

[9] *According to Artzner et al. (1998), a coherent risk measure is a risk measure that satisfies the properties of monotonicity, positive homogeneity, subadditivity and translational invariance.*

zon and the one-sided confidence level. The annual reports provide no detailed information about the scaling procedures. Generally speaking, scaling to a one-sided confidence level can be performed under the assumption of a normal distribution by multiplication with the respective scale factor (the credit risk model may be calibrated to the desired level, as the assumption of a normal distribution is not adequate for credit risks). When scaling holding periods, special attention needs to be paid to market risks, because scaling holding periods[10] from a ten-day to a one-year horizon implicitly suggests that the positions to be held in one year's time correspond to those currently held; this assumption is usually not supported by the actual holding period of positions in the trading book. For the analysis of the risk-bearing capacity, it is hence possible to consider if-then scenarios (stop-loss limits) to calculate the VaR with a one-year holding period in a more realistic, yet less conservative fashion.

Determining the overall risk position must be based on a process defining the way in which the individual risk types are aggregated (intra-risk and inter-risk aggregation). For inter-risk treatment, no assumptions about correlations are needed when simulation models are in use (since they are explicitly accounted for). By contrast, correlation assumptions need to be made for the intra-risk aggregation of several separately measured risk types. Risk types may be added or combined with the help of a correlation matrix. Copula approaches may also be used. When adding risks, a perfectly positive correlation is implied because it is assumed that all VaR values are computed simultaneously. Therefore, some credit institutions use aggregation methods that account for diversification effects. According to the banks' annual reports, at least one credit institution considers diversification effects when aggregating different risk types. Another bank states that the risk type results are added up. Three other credit institutions account for diversification effects at least within certain risk types (market and credit risk). The easiest way to aggregate risks under the assumption of diversification effects is to use variance covariance matrices. Advanced methods, such as copula approaches, allow for instance for the aggregation of distributions with tail dependences. However, the 2007 annual reports do not explicitly provide in-depth information about the consideration of diversification effects. Thus, it remains unclear whether correlations are assumed or whether copula approaches are used.

2.4 Definition of Economic Capital

Economic capital is defined as the capital needed to cover possible losses. However, different measurement methods and parameters can be used for measuring risks. In Austria's major banks under review, the VaR method is commonly used to measure economic capital. While the assumed holding periods for the VaR are consistently scaled to a period of one year, there are different approaches to determining the one-sided confidence level. At least two banks determine the one-sided confidence level by considering their desired[11] rating. In this case, the liqui-

[10] *A normal distribution may be assumed for market risks. Time is scaled by way of multiplication with the square root of the time horizon. Hence, to get from a 10-day holding period to a 250-day holding period, a multiplication with 5 (the square root of 25) is required.*

[11] *If the desired rating is associated with a maximum probability of default of 0.05%, it follows that the one-sided confidence level is 1% minus 0.05%, i.e. 99.95%.*

dation perspective is of importance (i.e. the worst-case scenario; as opposed to the going-concern perspective, which is only used for hedging purposes in negative cases). The minimum value chosen by the banks for the one-sided confidence level is 99%, while the maximum value indicated in the 2007 annual reports is a one-sided confidence level of 99.95%.

At the same time, some banks also calculate the risk capital for the going-concern perspective, for which a lower one-sided confidence level is used.

Only one of the 2007 annual reports provides information about the breakdown of economic capital by specific risk types (in one case, such values are mentioned in previous annual reports). It becomes evident that credit risk accounts for more than 70% of the economic capital.

2.5 Risk Coverage Capital

To determine the risk coverage capital, several factors need to be taken into account. The more subsidiaries are included in the ICAAP and the higher the number of countries where these businesses are located, the more attention needs to be paid to the unambiguous definition of risk coverage capital, because the underlying capital components should be consistent, even though different accounting standards may be used.

Risk coverage capital may be defined differently depending on the nature of the risk-bearing capacity analysis. If more than one comparison is made in the analysis of the risk-bearing capacity (for different one-sided confidence levels), it follows that more than one definition of risk coverage capital is required. In practice, banks either use a level concept for defining risk coverage capital and, depending on the representation, increase the number of levels in the calculation (two credit institutions define levels) or define different positions as risk coverage capital for the going-concern and for the liquidation perspective. In the annual reports under review, the defined constituents of risk coverage capital include, among others, the operating result, reserves, undisclosed reserves, equity and subordinated capital.

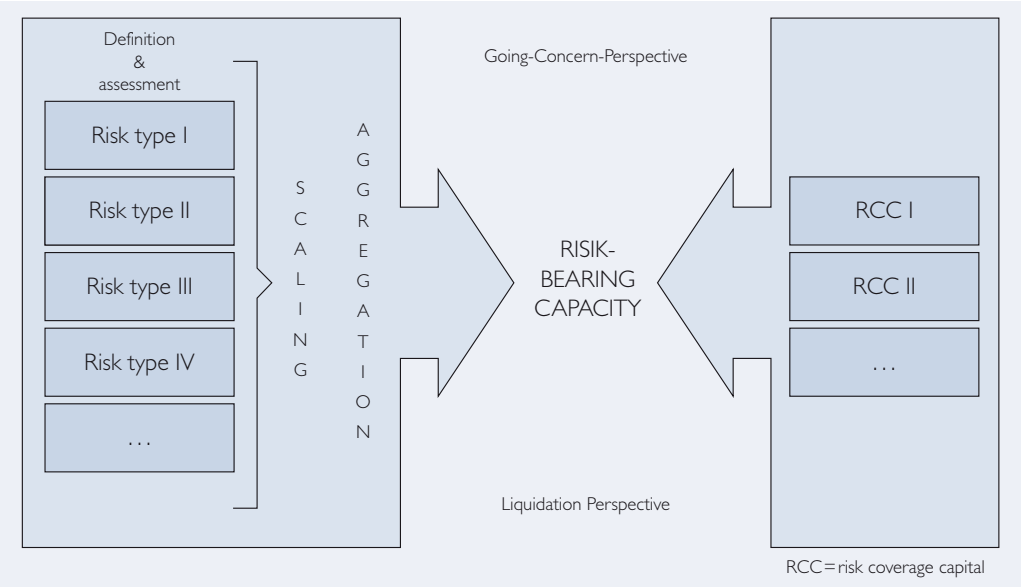
2.6 Risk-Bearing Capacity Analysis

Risk-bearing capacity analyses are meant to provide information about a credit institution's ability to cushion risks with internal capital if and when such risks materialize. For these analyses, all risks relevant for the bank in question are aggregated into an overall risk position that is then compared with the risk coverage capital.

The risks taken into account for risk-bearing capacity analyses vary depending on the credit institution. The prerequisite for including a risk type is its quantification (even in the form of a risk buffer for other risks). However, not all quantified risks need to be represented in the risk-bearing capacity analysis. This allows banks to manage e.g. (relevant) liquidity risks outside the framework of the risk-bearing capacity analysis.

In most cases, the overall risk position is calculated as a VaR measure. It is common practice to perform more than one comparison of the overall bank risk with the risk coverage capital, e.g. under the going-concern perspective with a one-sided confidence level of 95% and under the liquidation perspective with a one-sided confidence level of 99.95%. In few cases, expert estimates are used for the risk types included in the risk-bearing capacity analysis and capital buffers are created for other risks. Three of the eight banks include liquidity risk as a

Risk-Bearing Capacity Analysis



Source: OeNB.

separate position in their risk-bearing capacity analyses. The other five banks manage liquidity risk outside the framework of the risk-bearing capacity analysis.

According to the banks' 2007 annual reports, all of them factor mostly the three Pillar 1 risk types, i.e. market and credit risk as well as operational risk, into their risk-bearing capacity analyses. Equity investment risks are accounted for as separate positions by four of the banks, and two banks each consider business and real estate risks. Six banks mention other risk types in the risk-bearing capacity analysis (e.g. performance risk of the repayment vehicle, liquidity risk and refinancing risk).

It is evident from six of the eight annual reports that specific risk types, such as liquidity risk, interest rate risk and counterparty risk, are quantified and managed, but not included in the risk-bearing capacity analysis.

Different scenarios are used for assessing the overall bank risk, and the amounts of risk coverage capital used vary accordingly or different positions are employed for these scenarios (see above). As to the frequency of risk-bearing capacity analyses, half of the banks under review indicate that they perform them quarterly.

2.7 Risk-Adjusted Performance Measures

Considering just the performance of a bank does not provide sufficient input for integrated bank-wide capital allocation and risk management. In the same vein, risk measures must be put into context. Risk-adjusted performance measures account for both performance and risks.

Three of the eight banks disclose information about the risk-adjusted performance measure they use. While one bank uses the Economic Value Added (EVA), two credit institutions calculate the Return on Economic Capital (ROEC, which equals the Return on Risk-Adjusted Capital, RORAC). Another credit institution uses the Risk-Adjusted Return on Risk-Adjusted Capital (RARORAC).

A detailed description of the above-mentioned risk measures can be found in Schierenbeck (2003, p. 507 ff).

Since regulatory and economic approaches may be driven by differing objectives, it is possible to run parallel measurement systems. One example is the parallel use of the ROE and the ROEC, which is very helpful for comparing non-risk-adjusted and risk-adjusted performance measures.

2.8 Bank-Wide Risk Management

Bank-wide risk management comprises many elements because it basically concerns any decision made based on the risk measurement. In addition to reporting, three-year planning and the periodical determination of the risk strategy, this also affects the allocation of economic capital. The involved business units are given latitude for actively seeking out risk, and in the allocation process, the risk limit is assigned in the form of economic capital. The limit systems, which are described in detail in the annual reports under review, cover a wide variety of limit types. These include, first and foremost, VaR limits, which are inherently position-independent.[12] Stop-loss limits are also commonly used by the credit institutions under review. The same applies to sensitivity limits, volume limits, position limits (for foreign currencies, interest rate and equity price risks), rating-dependent limits and limits for nonlinear positions. The limit system thus serves to control risk concentrations.

Other risk management tools are risk-adjusted pricing or active portfolio management; both are explicitly mentioned by three of the eight banks. Other operational measures used by the banks under review, e.g. for the purpose of limiting operational risk, are contract design, contingency planning, insurance and hedging.

2.9 Stress Testing

The eight banks under review mention a large variety of stress tests. Given the great heterogeneity of the stress tests used, this study refers only briefly to some specific stress tests. The main focus is on scenario analyses, which are based on (five- or six-year) historical worst-case values or hypothetical scenarios. One credit institution also computes the expected shortfall in addition to the VaR, using the same confidence interval. As stress tests allow for the identification of sensitivities to specific risk factors, they are a valuable input for bank-wide risk management.

3 Outlook

Austrian credit institutions have made significant progress in implementing Basel II, such as the mandatory approaches under Pillar 1. While market risk measurement procedures had already been introduced a while ago, banks have put much effort into enhancing their credit risk models in recent years, especially those banks that had requested the application of the IRB approach. Improvements are also constantly being made in the areas of operational risk quantification and loss data compilation.

Pillar 2 complements Pillar 1 by adding an economic perspective, and Austrian credit institutions have been refining their systems in this area as

[12] *Unlike counterparty limits, VaR limits have the advantage of not providing any information about the type of product on which the VaR is based, thus maintaining the business unit's latitude. The downside of VaR limits is that an understanding of the relation of VaR values is a prerequisite and that the VaR for a given position first needs to be computed, while limits that, for example, determine the maximum outstanding nominal value, are easier to explain.*

well. Since banks have to meet the (mandatory) regulatory capital and economic capital requirements at the same time, they may use two different procedures for assessing the respective capital charges. Coexisting approaches may entail different management incentives, and so does the goal of obtaining good external ratings.

The implementation of the ICAAP requires, just like the implementation of Pillar 1, a complex IT structure and a high-quality data pool. Besides, the results for the overall bank risk may be sensitive to the selected methodology (choice of the risk measure, of the confidence level, consideration of correlations).

Regarding the implementation status, banks have already made great progress in advancing risk type measurement for the risk-bearing capacity analysis. In a first step, banks drew and built on the risk quantification methods used under Pillar 1. Subsequently, they have been adding or are about to add the economic perspective.

While very few banks publish quantitative results, such as a breakdown of the economic capital by risk type or the utilization of the risk coverage capital as part of the risk-bearing capacity analysis, information about the concepts used for bank-wide risk management is already available in the annual reports. Another step yet to be taken is the application of bank-wide risk management to business operations. The challenge here is that the concept of economic capital needs to enjoy a high degree of acceptance within the company, so that bank-wide management can be geared toward economic parameters and subsequently integrated into business operations.

The third pillar of Basel II revolves around disclosure, including information about certain elements of capital adequacy procedures. Quantitative and qualitative disclosure documents have already been published, which has subsequently resulted in a higher level of transparency. Publications containing more detailed information are expected in the near future.

Another challenge that Austrian banks face is related to their extensive business activities in CEECs. Integrating subsidiaries requires additional resources because recently acquired enterprises might already have systems in place. In such a case, the local ICAAP has to be integrated into the centrally developed process, or the parent bank decides to run parallel structures. Sound judgment and solid business acumen help promote such an integration process. Furthermore, numerous country-specific requirements and accounting regulations need to be taken into account. The more fully consolidated companies a banking group includes, the higher the amount of organizational effort required for the integration process, because a separate integration step is needed for every single risk type at each of the affiliated credit institutions.

Banking supervision authorities also meet with new challenges. In light of banks' extensive business activities in CEECs, supervisory authorities in different countries need to cooperate very closely because a common understanding must be reached to ultimately assess the implementation of the ICAAP.

To sum up this analysis, Austria's major banks have made important strides in developing their capital adequacy procedures in recent years, thus paving the way for implementing a process to assess the risk-bearing capacity. A comprehensive, fully integrated bank-wide risk management is still in different stages of implementation and remains a step to be taken.

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The Austrian Carry Trade: What Are the Characteristics of Households Borrowing in Foreign Currency?

Christian Beer, Steven Ongena, Marcel Peter[1]

12% of all Austrian households reporting a housing loan in a 2004 financial wealth survey had borrowed in foreign currency. Given the importance of such "household carry trades," their peculiar character, and immediate policy concerns, too little is known about the attitudes and characteristics of the households involved.

We use the 2004 survey (covering 2,556 Austrian households) to sketch a comprehensive profile of the attitudes and characteristics of the households involved. For this purpose, we employ both univariate tests and multivariate multinomial logit models.

Our analysis suggests that risk-loving, high-income, and married households are more likely to take out a housing loan in a foreign currency than other households. Housing loans as such are, moreover, most likely taken out by high-income households. These findings may partially assuage policy concerns about household default risk on foreign currency housing loans.

JEL classification: G21, G15, F34, F37
Keywords: Foreign currency borrowing, mortgages, banking sector, Austria, Swiss francs

1 Introduction

Carry traders – i.e., investors borrowing in a low-yielding currency and investing in a high-yielding one – have become a widespread phenomenon. While carry trades have typically been conducted by large financial institutions and leveraged institutions, such as hedge funds, carry trade activity is now also widespread among households in Austria. 12% of all Austrian households reporting a housing loan in a 2004 financial wealth survey had borrowed in foreign currency, mostly in Swiss francs. This widespread borrowing in Swiss francs is further noteworthy because Austrian households – otherwise known to be conservative investors – are thus willingly taking the risks of a variable interest rate and of equity-backed repayment vehicles on top of foreign exchange risk.

The concern about "household carry traders" being less sophisticated than institutional carry traders is not without grounds. *"Typical [institutional] carry trade investors are steeped in the complexities of currency risk and far more likely to protect themselves when engaging in currency bets than ordinary borrowers"* (Perry, 2007). If indeed financially illiterate and exposed, Austrian household carry traders may pose an immediate and systematic credit risk to the lending institutions, should an unexpected and sharp appreciation of the Swiss franc coincide with a drop in returns on the underlying equity repayment vehicle of the loan.

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Given the widespread presence of household carry trades, their peculiar character, and related policy concerns, very little is known about the main agents involved. This paper aims to fill this gap, in two ways. First, we draw upon existing sources to sketch a comprehensive profile of the parties and contracts involved in a typical Austrian household carry trade. Second, we analyze a uniquely detailed financial wealth survey of 2,556 Austrian households, carried out in 2004, to determine how financially literate, risk averse and wealthy the household carry traders are.

We organize the rest of the paper as follows. Section 2 first describes the main features of foreign currency household loans in Austria and recent developments[2]; it then discusses the role of the banks and financial advisers in this household carry trade; and finally explores what makes foreign currency loans attractive for Austrian households. Section 3 describes the data and our empirical methodology. Section 4 discusses the results and section 5 concludes.

2 Evidence on Austrian Household Carry Trades

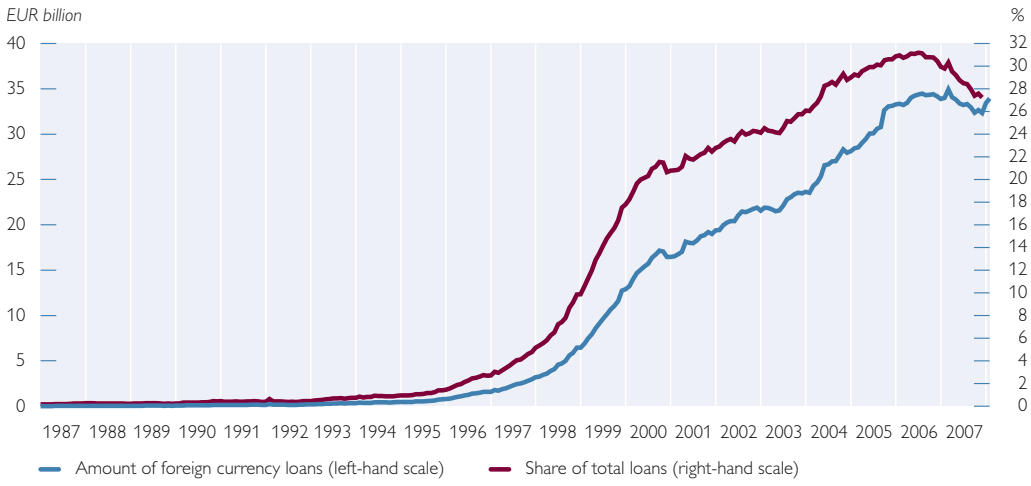
2.1 The "Average" Foreign Currency Loan to Households

Foreign currency lending to households has been growing rapidly in Austria since the late 1990s and is now a widespread phenomenon. By the end of 2007, the euro equivalent of foreign currency loans exceeded EUR 32 billion, which corresponds to almost 30% of the total volume of loans granted (chart 1).

From the late 1980s to late 2006, annual growth rates of household loans in foreign currency clearly exceeded growth rates of household loans in domestic currency, except during a few months in the late 1980s and early 1990s. Since late 2006, loans in foreign currency have been somewhat less popular. The denomination of choice is the

Chart 1

Loans to Austrian Households in Foreign Currency (1987–2007)



Source: OeNB and authors' calculations.

Note: The graph displays the amount of loans made to Austrian households in foreign currency, in billions of euro, and the share of such loans in total lending to Austrian households, in percent.

[2] *The constraints of the study did not allow us to cover financial market developments in 2008, though.*

Swiss franc, which accounts for more than 95% of all household loans in foreign currency.[3]

Besides many standard features, these household loans have a few rather peculiar characteristics (Würz and Hubmer, 2006; Tzanninis, 2005). Households taking out a foreign currency loan will typically do so to finance the purchase of a home and borrow about EUR 100,000 for 15 to 25 years against real estate collateral. Moreover, foreign currency loans typically carry a *variable interest rate* that is set at a spread of around 150 basis points above the 3-month LIBOR of the respective loan currency and repriced every three months; foreign currency loans are structured as *balloon loans* (involving monthly payments of interest only, with full principal repaid at maturity); offer the borrower a fee-paying *option to switch to another currency* (including the euro) at contractually specified rollover dates (usually the repricing dates); and have *forced conversion clauses*, allowing the bank to convert the loan into a euro loan at any time without the borrower's consent. Finally, foreign currency loans are usually coupled with a *repayment vehicle* (usually a life insurance contract or a mutual fund) which requires monthly payments and serves to repay the principal at maturity.

2.2 Role of Banks and Financial Advisers in the Supply of Foreign Currency Loans, Swiss Loans in Particular

Foreign currency loans are usually supplied by Austrian banks, but the decision to take out a loan is often prompted by independent financial advisers. Banks claim that the market for Swiss franc housing loans is actually very demand-driven and that the intensity of competition in the Austrian banking sector does *not* allow them *not* to offer Swiss franc housing loans (Jetzer, 2005). This claim is consistent with the findings of Tzanninis (2005) and the observation by Boss (2003, p. 45) that intermediation spreads[4] in the Austrian banking sector are lower in foreign currency lending (110 to 140 basis points) than in domestic currency lending (200 to 400 basis points).

In supplying foreign currency loans, banks have to worry about legal and reputational risks if these loans turn out to be a bad investment (Boss, 2003). Additionally they face a potential *currency mismatch* between these loans and their deposits, which are mainly in euro. Furthermore banks need to deal with the currency-risk-induced *credit risk* embedded in (Swiss franc) housing loans.

In contrast to banks, independent financial advisers and financial advisory firms seemingly market Swiss franc loans more actively to bolster and sustain household demand (Boss, 2003; Tzanninis, 2005). For example, data from the 2004 financial wealth survey of Austrian households (see section 3) suggest that independent financial advisers are an important source of information on financial matters for households that have taken out foreign currency loans. In the survey, 27% of households with a foreign currency loan mentioned independent financial advisers as one of their information sources, compared to only 13% of households with a loan in euro. Households with

[3] *See for example recent issues of the OeNB Financial Stability Report.*

[4] *The intermediation spread is defined as the difference between the average interest rate charged on lending to nonbanks and the average rate charged on interest-bearing liabilities (interbank deposits, customer deposits, own securities issued).*

foreign currency loans consult their bank only slightly less often (86%) than households with a euro loan (88%).

Why are independent financial advisers apparently less apprehensive about pushing Swiss franc loans? After all, they are liable for their advice, just like banks.[5] The sales commissions involved may provide an explanation. Indeed, independent financial advisers receive sales commissions also on the repayment vehicles that underpin most Swiss franc loans. Often it is not even possible to amortize Swiss franc loans in a regular way, especially not (and this should therefore not come as a surprise) when these loans are obtained through independent financial advisers, as a study commissioned by the Federal Ministry of Social Affairs and Consumer Protection (2007) suggests.

2.3 What Makes Foreign Currency Loans Attractive for Households

2.3.1 Interest Rate and Exchange Rate

One of the main reasons for the attractiveness of Swiss franc loans appears to be that interest rates on such loans have been lower than comparable interest rates in euro (and its predecessor currencies) during most of the recent past. According to Abele and Schäfer (2003), for example, the differential between three-month euro and Swiss franc interest rates (LIBOR) has on average been 1 to 1.7 percentage points higher than the average annual appreciation of the franc over the past 30 years, making a loan in Swiss francs rational arbitrage, at least ex post. Even the (credit) spread over the reference interest rate payable by borrowers may be lower on Swiss franc loans than on domestic currency loans (Abele and Schäfer, 2003, pp. 23–24 and p. 45).[6]

In addition, the exchange rate of the Swiss franc vis-à-vis the euro (and the currencies of the Deutsche mark block) has been – and is still perceived to be – quasi-fixed. This perception is not surprising given that the volatility of the Swiss franc/euro exchange rate has been very low for a protracted period of time (compared to other exchange rates in the same or other time periods).

Furthermore, the conversion option also alleviates the exchange rate risk. It is not entirely clear, however, how common this option is. In the above-mentioned study commissioned by the Federal Ministry of Social Affairs and Consumer Protection (2007), for example, the currency switching option is reported to be available in only 14 out of the 25 analyzed contracts, and in 5 out of these contracts conversion itself is actually dependent on the bank's consent and hence potentially less valuable.

At the same time, Dlaska (2006), Boss (2003) and conversations with an experienced industry observer suggest that the currency switching option is common (though not legally mandatory). Currency switching seems to occur, switching fees do not seem excessive, and switching seems almost tax neutral.

2.3.2 Repayment Vehicle

Households may have been injudiciously attracted by the combination of the Swiss franc loan and the underlying repayment vehicle. Observers reckon

[5] *As it is eventually the banks which extend the loans, it seems, admittedly, not easy to separate the banks entirely from the independent financial advisers in this "game."*

[6] *Though numbers released by the Oesterreichische Nationalbank seem not to confirm this spread differential (OeNB Press Release of October 16, 2003).*

households are unable to discern the composing financial parts of the loan and therefore view the resulting "structured product" as a kind of "auto-amortizing mortgage," whereby the savings in interest payments and the higher expected returns from the repayment vehicle are themselves providing the resources to amortize the loan.

At the end of June 2007, more than 70% of foreign currency loans to households were indeed balloon loans (i.e., interest-only, with a balloon repayment of principal at maturity) coupled with a repayment vehicle (Lamatsch, 2007). And foreign currency loans with a remaining maturity of more than ten years indeed almost always feature an underlying repayment vehicle (Zöllner and Schubert, 2007, p. 17).

Though repayment vehicles are also possible on euro loans, they are rarely used for euro loans, as households would need to invest directly in riskier equity to achieve comparable returns. Somewhat inconsistently, households seem reluctant to do so in the context of domestic loans, again possibly due to a worrying lack of financial sophistication.

2.3.3 Fees

Fees may impact, if not the choice of the loan currency, then at least the amount borrowed in foreign currency. Regular bank fees do not seem higher on Swiss franc loans than on euro loans for comparable services, as implied by various surveys run by the Vienna Chamber of Labor.[7] But the "catch" seems to be the various fees and commissions on all the foreign currency components of the transaction, e.g., the currency conversion fee paid each time interest or amortization payments are made, the fixed fee for maintaining a foreign currency bank account in addition to the regular euro account, or the fee for switching currencies. Additional fees occur for the repayment vehicle. Back-of-the-envelope calculations suggest these additional fees may make it unprofitable for borrowers to obtain loans of less than EUR 73,000 and 20 years duration in Swiss francs (Prantner, 2005).

2.3.4 Herding

One explanation for the rapid growth of Swiss franc loans in Austria is herd behavior (Waschiczek, 2002). The practice of taking out foreign currency loans started in Vorarlberg, where many households have an income in Swiss francs (Waschiczek, 2002, p. 85). From around 1995 on, the phenomenon started to spread eastwards within Austria (Tzanninis, 2005) and this pattern of geographical diffusion is not necessarily inconsistent with herding, exacerbating potential concerns one may have about the positions Austrian households are taking.

It is not clear, however, whether herding is a major factor in the popularity of Swiss franc loans in Austria. For example, households that take out foreign currency loans spend more time comparing the different financing possibilities, seem better educated, and mention friends and colleagues significantly less often (28%) as an information source than households with a traditional euro housing loan (46%), as implied by a market-Institut study (2003).

In addition, household borrowing in Swiss francs in other countries – in

[7] *See Prantner (2005) and Kollmann and Prantner (2006) for example.*

Germany and France,[8] but also in countries that have no border with Switzerland, such as Denmark (Bernstein, 2007), Greece (Perry, 2007), Hungary, Poland, the Czech Republic and Slovakia for example (Saunders, 2007) – suggests other drivers may also be at work.[9] In the case of the Central and Eastern European countries, some Austrian banks may actually have played a role in spreading loans in Swiss francs.

2.3.5 Neutral Taxation

Since deduction of interest payment is not possible if a house was bought for private purposes and the notional rent value is not taxed, taxation seems to play a basically neutral role in the choice of loan currency, such that foreign currency borrowing by households in Austria is not merely an unintended consequence of some tax regulation.

Housing *subsidies* are important in Austria, but are often granted irrespective of the choice of loan currency. In some federal states though, housing subsidies may be given through low interest rate loans in euro. The effect on household demand for Swiss franc loans may therefore be ambiguous, increasing household possibilities to invest in housing while reducing the attractiveness of a foreign currency loan per se, as seemingly cheap financing in euro is available. It must also be taken into account that there are income limits for these subsidies. Therefore they are not relevant for high-income households in our sample.

3 Data and Empirical Model

3.1 Data

Our sample is drawn from an existing survey about Austrian households' financial wealth that was commissioned by the OeNB and conducted by the market research institute FESSEL-GfK during the summer and fall of 2004.[10] Hence our analysis is based on the secondary use of existing data on outstanding loans. For our purpose, we categorize the 2,556 sample households into six groups according to the type of loan they had chosen: First, we differentiate households that have taken out a loan from those that did not. Among the borrowers, we differentiate between those that have chosen a housing loan from those that have taken out other types of loans. Finally, among those reporting a housing loan, we differentiate those with a housing loan denominated in euro and those that have chosen a housing loan denominated in foreign currency.[11]

3.2 Household Characteristics as Explanatory Variables

The household characteristics we retain for this study can be grouped into sets of *subjective* and *objective* variables. The definition of the variables is described in the appendix.

3.2.1 Subjective Variables

The subjective variables are binary (dummy) variables based on answers to questions about the financial literacy and risk aversion of the interviewed main decision-maker in the household.

[8] *Total loans denominated in Swiss francs to domestic nonmonetary financial institutions for end-2007, in CHF billion: Austria: 68.9, Germany: 35.3, France: 22.7 (Source: central bank websites).*

[9] *During the 1980s mortgages in Swiss francs (and Japanese yen) were also common in the U.K., but the depreciation of the sterling ended their popularity, painfully for some households (Saunders, 2007).*

[10] *For more details about this survey, see Beer et al. (2006).*

[11] *Observations for households that have taken out more than one loan are appropriately downweighted. Consequently to improve readability we do not continuously allow for multiple loan possibility.*

If households act rationally and in accordance with their own self-assessment on this account, we expect less financially literate households to avoid carry trades and hence housing loans in foreign currency. Therefore we include financial saviness variables that capture various aspects of the household's literacy and attitude regarding financial products and decisions. The first variable *d(Indifferent)* captures whether a household takes an interest in financial issues or not. The second variable *d(Ignorant)* reflects whether the surveyee is informed about financial issues or not. The third variable *d(Negligent)* indicates whether the surveyee agrees with the statement that "I don't want to have to care about an investment product once I have made up my mind – that's the bank's job" or whether he/she does not. Finally, the fourth saviness variable *d(Passive)* reflects whether the surveyee shops around or not.

These four variables measure quite different aspects of financial literacy. Thus, individual household heads surveyed did not answer uniformly the corresponding questions. For example, 69% of those that take an interest in financial issues (i.e., are *not* indifferent), 60% of those that are not ignorant, and 68% of those that always look at various bank offers (i.e., are *not* passive) don't want to have to care about an investment product once they have made up their minds (i.e., are negligent). Conversely, 56% of those that do not shop around for the best offer (i.e., are passive) and 60% of those that do not want to have to care after the initial decision (i.e., are negligent) take an interest in financial issues (i.e., are *not* indifferent).

To capture the households' aversion to risk we constructed three measures.

The first measure *d(Risk aversion)* regards households as risk averse if they do not agree with the statement "A high return on investment is more important to me than a lot of security." A second measure of risk aversion uses the answer to the question whether banks often grant loans too light-heartedly *d(Bank risk aversion)*. Finally, households are said to have an aversion to stock exchange risk *d(Stock risk aversion)* if the surveyee thinks that stock investment is too risky.

As with the financial literacy variables, the risk aversion variables measure different dimensions of risk aversion. For example, 75% of household heads that do not think that investment in stocks is too risky (i.e., are not stock risk averse) do not find that high return is more important than a lot of security (i.e. are risk averse). *d(Bank risk aversion)* is only weakly correlated with the two other risk aversion variables.

3.2.2 Objective Variables

The objective variables on the other hand are the answers to questions about location, income, wealth, age, marital status, household size, employment, and education. Most of the objective variables are commonly featured in studies estimating household demand for debt (Crook, 2006) and are most likely to also influence the choice of loan type.[12]

The variable *Distance to Swiss border* assigns a value to each province that increases with the distance to Switzerland. People living close to the border may have income in Swiss francs (e.g., because they work in Switzerland),

[12] *Following the seminal work by Campbell and Cocco (2003), papers that study the choice between fixed and adjustable rate mortgages feature household location, wealth, income, marital status, size, employment, and education, among other variables (see Paiella and Pozzolo, 2007, for example).*

making a loan in francs a natural hedge and not a carry trade stricto sensu. More banks may also offer loans in Swiss francs in the border region.

We further include the natural logarithm of monthly *Income* and financial *Wealth*, both in euro. The correspondence between income and wealth may be complex. Higher-earning and richer households may be less likely to take a housing loan but, if really wealthy, may also be more likely to engage in carry trades when doing so. In a robustness check, we also introduce a variable that equals one if the financial wealth of the household is in the top 5 percentile and equals zero otherwise, *d(Top wealth class)*.

As control variables we also include *Age*, in years, *Age^2* to capture life-cycle savings dynamics, the marital status *d(Married)*, the *Number of children* up to 14 years old, and the *Number of adults* in the household. We also take into consideration whether the household head (or his or her partner) is a civil servant, *d(Civil Servant)*, or whether one of them is self-employed, *d(Self-employed)*. Most civil servants have a safe source of income while most self-employed people face a more risky income stream. This may determine the willingness to undertake additional speculative carry trades. While self-employed people may also be more risk-loving by nature, risk aversion variation should have been neatly captured by the three subjective risk aversion variables. Finally, the *Education* of the household head is also included in our analysis.

4 Results and Discussion

4.1 Univariate Tests

Table 1 lists the means of the explanatory variables for all surveyed households as well as for the following three category pairs: Households with a loan and without a loan; households with a housing loan and with loans other than housing loans; and households with a housing loan in euro and households with a housing loan in foreign currency. The differences between the means of each category pair are also indicated, together with the significance levels of a t-test of differences assuming unequal variances.

Though only univariate, the results are interesting per se. Households with a loan seem more financially literate and less risk averse than those households who do not borrow. Borrowers further live somewhat closer to the Swiss border and receive EUR 528 more in monthly income.[13] The difference in financial wealth is however not statistically significant. Furthermore, households with a loan are 13 percentage points more likely to contain a civil servant and 3 percentage points more likely to include a self-employed person. The reference person is on average 9 years younger, 15 percentage points more likely to be married, and has a better education. These households are also larger with 0.3 more children and 0.4 more adults.

Among those households that borrow, there seems to be no difference in financial literacy and risk-aversion between households with a housing loan and households with loans other than housing loans. Households taking out a housing loan live somewhat closer to the Swiss border, have EUR 25,094 more in wealth, are 7 percentage points more likely to be married, with 0.2 more children, and the household head is somewhat more educated.

Most interesting for our purpose is the comparison between households

[13] *As we use the median values for each of the twenty income ranges indicated in the survey, the comparisons of the mean income for each of the loan categories are only indicative.*

Table 1

Descriptive Statistics

Mean	All households	Households with a loan	Households without a loan	Difference		Households with a housing loan	Households with loans other than housing loans	Difference		Households with a housing loan in euro	**Households with a housing loan in foreign currency**	Difference	
d(Indifferent)	0.382	0.321	0.420	−0.099	***	0.298	0.369	−0.071	**	0.297	**0.259**	0.038	
d(Ignorant)	0.559	0.533	0.575	−0.043	**	0.533	0.552	−0.019		0.543	**0.429**	0.114	**
d(Negligent)	0.724	0.733	0.718	0.015		0.729	0.754	−0.025		0.740	**0.618**	0.122	**
d(Passive)	0.514	0.462	0.548	−0.086	***	0.470	0.469	0.001		0.481	**0.446**	0.035	
d(Risk aversion)	0.820	0.788	0.841	−0.053	***	0.803	0.757	0.046	*	0.812	**0.702**	0.110	**
d(Bank risk aversion)	0.778	0.736	0.805	−0.069	***	0.750	0.688	0.062	**	0.754	**0.698**	0.056	
d(Stock risk aversion)	0.829	0.809	0.841	−0.033	**	0.794	0.862	−0.068	***	0.799	**0.737**	0.062	
Distance to Swiss border	4.114	4.025	4.171	−0.147	***	3.915	4.283	−0.368	***	3.941	**3.186**	0.755	***
Income (in EUR)	2,470	2,793	2,265	528	***	2,862	2,682	180	**	2,834	**3,377**	−543	***
Wealth (in EUR)	54,666	51,841	56,461	−4,620		57,820	32,726	25,094	***	55,448	**75,126**	−19,678	
d(Top wealth class)	0.050	0.033	0.061	−0.027	***	0.038	0.014	0.024	**	0.027	**0.124**	−0.097	***
Age	50.7	44.9	54.3	−9.380	***	45.2	44.4	0.799		45.5	**40.9**	4.603	***
d(Married)	0.595	0.685	0.538	0.147	***	0.713	0.640	0.073	**	0.700	**0.895**	−0.196	***
Number of children	0.412	0.611	0.286	0.325	***	0.671	0.443	0.228	***	0.663	**0.973**	−0.310	***
Number of adults	2.008	2.273	1.840	0.434	***	2.326	2.190	0.135	*	2.321	**2.370**	−0.049	
d(Civil servant)	0.233	0.314	0.182	0.132	***	0.314	0.312	0.002		0.312	**0.366**	−0.055	
d(Self-employed)	0.108	0.123	0.098	0.025	**	0.116	0.142	−0.026		0.110	**0.192**	−0.082	**
Education	1.988	2.045	1.952	0.093	***	2.057	2.005	0.052	*	2.045	**2.136**	−0.091	**
Memo items:													
Loan amount (in EUR)	18,646	47,985	0	47,985	***	59,437	27,035	32,402	***	55,577	**120,948**	−65,371	***
Debt/income	0.492	1.267	0.000	1.267	***	1.566	0.669	0.897	***	1.491	**2.818**	−1.327	***
Wealth − life insurance and funds (in EUR)	42,753	37,920	45,824	−7,904		42,764	21,634	21,130	**	41,267	**52,130**	−10,863	
Wealth − debt (in EUR)	36,020	3,856	56,461	−52,605	***	−1,617	5,691	−7,308		−129	**−45,822**	45,693	***
Number of households	2,556	934	1,622			704	333			655	**89**		

Source: Authors' calculations.

*Note: This table lists the means of all variables for all surveyed households and for the six categories: households with a loan and without a loan with a housing loan and with loans other than housing loans, and with a housing loan in euro and with a housing loan in foreign currency. The differences between the means in the various categories are also indicated and the significance levels of a t-test of differences assuming unequal variances is also reported. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.*

with a housing loan in euro and households with a housing loan in foreign currency (see column marked in bold, table 1). Foreign currency borrowers seem less financially illiterate (less ignorant and less negligent) than euro borrowers. Households with housing loans in foreign currency are somewhat less risk-averse. However, the difference is only statistically significant with respect to the indicator *Risk aversion*. Foreign currency borrowers live significantly closer to the Swiss border, receive EUR 543 more in monthly income, and are 10 percentage points more likely to be in the top wealth class. The household with a foreign currency loan is 8 percentage points more likely to include a self-employed person, with 0.3 more children living in the household. Its head is somewhat more educated, 5 years younger and 20 percentage points more likely to be married.

To conclude, the Austrian households that obtain a housing loan in foreign currency are more financially literate and less risk averse than any other category we consider. They also live closer to Switzerland, have a higher in-

come, are more likely to be among the wealthiest households; they are younger, more likely to be married, more likely to be self-employed, and more likely to be well educated than any other category. From a policy perspective this group seems better suited than any other to "engage in carry trades."

4.2 Multivariate Tests

We also investigate whether these univariate findings hold up in a multivariate setting, focusing on the category of households that have chosen a housing loan in foreign currency. For this purpose, we use both a multinomial logit model for the four final choices underlying the categorization of households in table 1 (i.e., no loan, housing loan in euro, housing loan in foreign currency, loans other than housing loans) and a logit model for the choice between a housing loan in euro and a housing loan in foreign currency.

The multinomial logit model allows us to determine the impact of the households' characteristics on the loan choice[14] and to look at the marginal effects, i.e., the effect of a small change in one of the independent variables (or a change from 0 to 1 in case of binary variables) on the probability of observing a given loan choice.

Overall, our results suggest that households having a higher income, lower wealth, an older household head, more children and more adults are more likely to take out a loan than other households. Our results on income and household size are as such fully in line with most studies (Crook, 2006, table 3.4). While age seems mostly insignificant in other studies, wealth sometimes also has a negative sign.

Regarding the households that have chosen a housing loan in foreign currency, the results from these simple multivariate exercises are consistent with the univariate tests, with a few qualifications. In a multivariate context, only risk aversion, proximity to Switzerland, income, age, and marital status are significantly linked to the choice of a housing loan in foreign currency. Households with low risk aversion, who live closer to the Swiss border, have higher income and age, and are married, are more likely to take out a housing loan in foreign currency than other households (table 2).

Using the variable that indicates whether a household belongs to the top 5 percentile of wealth *d(Top wealth class)* leaves the results mostly unaffected. The only significant difference occurs in the simple logit regression (not shown) where households with a housing loan in foreign currency are compared to households with a housing loan in euro. Here, we find that very wealthy households with a loan are 17 percentage points more likely to have a housing loan in foreign currency than a housing loan in euro.[15] We can also predict the probability of taking out a foreign currency loan for households with different socio-economic characteristics. For example, for a household that is risk loving, lives in Vorarlberg, is in the top 5% wealth bracket and married but with otherwise mean characteristics, the baseline multinomial logit model predicts a probability of taking a housing loan in foreign currency of 48%, compared to a probability of only 3%

[14] *For multinomial logit models see e.g. Greene (1997, p. 857). In Beer et al. (2008) the models used are explained in more detail and the estimation results are presented.*

[15] *Austrians have become wealthier over the last few decades, possibly providing a partial explanation for the substantial growth in volume in foreign currency loans during the last 15 years.*

Table 2

Marginal Effects after Multinomial Logit Estimation

Choice category: Households with a housing loan in foreign currency		
d(Indifferent)	0	0
d(Ignorant)	0	0
d(Negligent)	0	0
d(Passive)	0	0
d(Risk aversion)	−−	−−
d(Bank risk aversion)	−	0
d(Stock risk aversion)	0	0
Distance to Swiss border	−−−	−−−
Log(Income)	++	++
Log(Wealth)	0	
d(Top wealth class)		0
Age	0	+
Age^2	++	++
d(Married)	++	++
Number of children	0	0
Number of adults	0	0
d(Civil servant)	0	0
d(Self-employed)	0	0
Education	0	0

Source: Authors' calculations.

Note: The table displays the signs of the marginal effects from (i) the baseline multinomial logit model for the category "households with a housing loan in foreign currency" (first column) and (ii) the multinomial logit model for the same household category but replacing Log(Wealth) with d(Top wealth class) (second column)." +++,++,+ (−−−, −−, −) represent positive (negative) effects that are statistically significant at the 1%, 5%, and 10% level, respectively. 0 Indicates that the coefficient is not significant.

for a household for which all characteristics equal the mean. The corresponding probabilities predicted by the simple logit model are 81% and 11%.

5 Conclusion

12% of all Austrian households reporting a housing loan in a financial wealth survey had borrowed in foreign currency, mostly in Swiss francs. Given the importance of such "household carry trades," their peculiar character, and immediate policy concerns, we know too little about the attitudes and characteristics of the main agents involved.

We draw upon existing sources and analyze a uniquely detailed financial wealth survey of 2,556 Austrian households, interviewed in 2004, to sketch a comprehensive profile of the attitudes and characteristics of the parties involved in the Austrian household carry trades. We employ both univariate tests and multivariate (multinomial) logit regressions.

Our analysis suggests that risk-loving, married households with high income are more likely to take a housing loan in a foreign currency than other households. Financially literate or high-income households are more likely to take a housing loan in general. These findings therefore may partially assuage potential policy concerns about household credit risk. But risks to financial stability remain. First of all, not all borrowers belong to the group of high-income households that should be able to cope with the risks involved in borrowing in foreign currency. Second, income streams are subject to some risk, and assets may become less valuable. With regard to banks, lending in foreign currency has led to concentration risks.

Though seemingly robust as such, our results are subject to a number of obvious caveats. The data clearly do not allow us to disentangle demand and supply factors, and our multivariate model is a simple reduced-form. In addition, households without debt may never have applied for credit or may have been denied credit. Imposing somewhat more structure on the empirical model (though admittedly also ad hoc) by estimating a nested multinomial logit model – whereby the decision to borrow is followed by a loan type decision and then a loan currency decision – does not alter our main findings.

We leave to future research the investigation of a number of other potential drivers of foreign currency borrowing by households. First, we cannot

take into account differences in interest rates and exchange rates at the time of loan origination because we know only that a household has taken out a loan but not when it did so. Second, the characteristics of the household may have changed since the loan was obtained. However, we can argue that loan decisions are to some extent reversible, or loans are convertible such that current household attributes may also matter. Third, the somewhat murky role financial advisers played in the promotion of foreign currency loans may warrant further investigation. Finally, the question remains open as to whether households possess the necessary financial literacy to understand the various risks attached to the typical foreign currency loan contract.

Appendix: Definition of Variables

This appendix describes in detail the construction of the subjective variables and lists the definition of the objective variables. All data were obtained from the OeNB's 2004 survey on Austrian households' financial wealth.

1 Subjective Variables

The two sets of subjective variables on financial literacy and risk aversion are dummy variables based on the answer categories

1 = I fully agree,
2 = I partially agree,
3 = I rather disagree,
4 = I totally disagree

that respondents could choose in response to the following survey questions (original German version in parentheses):

Financial Literacy

– *d(Indifferent)* = 0 if respondent chose answer categories 1 or 2 to question "I take an interest in financial issues" (Ich beschäftige mich gerne mit Finanzfragen); 1 if respondent chose answer categories 3 or 4;
– *d(Ignorant)* = 0 if respondent chose answer categories 3 or 4 to question "I am not well informed about financial issues; I fully rely on advice from my bank" (In Finanzfragen kenne ich mich nicht so gut aus, ich vertraue da ganz auf den Berater meiner Bank); 1 if respondent chose categories 1 or 2;
– *d(Negligent)* = 0 if respondent chose answer categories 3 or 4 to question "I don't want to have to care about an investment product once I have made up my mind – that's the bank's job" (Ich möchte mich nach dem Abschluss eines Anlageprodukts möglichst wenig darum kümmern müssen; das ist die Aufgabe der Bank); 1 if respondent chose categories 1 or 2;
– *d(Passive)* = 0 if respondent chose answer categories 1 or 2 to question "I always shop around to find the best product" (Ich hole prinzipiell mehrere Angebote von verschiedenen Geldinstituten ein); 1 if respondent chose categories 3 or 4.

Risk Aversion

– *d(Risk aversion)* = 0 if respondent chose answer categories 1 or 2 to question "A high return on investment is more important to me than a lot of security" (Ein hoher Ertrag ist mir bei Veranlagungen wichtiger als hohe Sicherheit); 1 if respondent chose answer categories 3 or 4;
– *d(Bank risk aversion)* = 0 if respondent chose answer categories 3 or 4 to question "Banks often grant loans too light-heartedly" (Kredite werden von Banken oft zu leichtfertig vergeben); 1 if respondent chose answer categories 1 or 2;
– *d(Stock risk aversion)* = 0 if respondent chose answer categories 3 or 4

to question "I think that stock investment is too risky" (Das Anlegen in Aktien halte ich für zu riskant); 1 if respondent chose answer categories 1 or 2.

2 Objective Variables

Distance to Swiss border: 1 = Vorarlberg, 2 = Tirol, 3 = Salzburg and Carinthia, 4 = Upper Austria and Styria, 5 = Lower Austria, Vienna, Burgenland

Income: Income in euro (midpoint of each of 20 income brackets)

Wealth: Gross financial assets, in euro (= current account holdings + savings deposits, including deposits made under building loan contracts + value of bonds + value of stocks quoted on the stock exchange + value of mutual fund shares (equity funds, bond funds, mixed funds, real estate funds, hedge funds, money market funds) + value of holdings in enterprises + accumulated payment of life insurance premia).

d(Top wealth class): 1 = wealth > 95th percentile; 0 = otherwise.

Age: Age in years.

d(Married): 1 = married (or in partnership); 0 = otherwise.

Number of children: Number of children up to 14 years.

Number of adults: Number of adults in household.

d(Civil servant): 1 = civil servant; 0 = not a civil servant.

d(Self-employed): 1 = self-employed; 0 = not self-employed.

Education: 1 = at most compulsory school, 2 = at most high school, 3 = University or other tertiary education.

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An Analysis of Credit to the Household Sector in Austria

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This article provides an econometric analysis of the determinants of the aggregate level of credit to the household sector in Austria. These are our most important results:

An error correction model explaining real credit shows that the development of this variable has been in line with fundamental macro data in the last years. Thus, contrary to what could be observed for the euro area as a whole, there has been no loan overhang or shortfall over the last years in Austria.

A growth decomposition shows that the largest contribution to real credit growth comes from real GDP. Furthermore, in our case, univariate models are doing better in forecasting real credit than vector error correction models.

JEL classification: C22, C32, C53, E51
Keywords: Loan overhang, household debt, time-series models

1 Introduction

This article provides an econometric analysis of the determinants of the aggregate level of credit to households in Austria. There are two fields in which our analysis can be applied: First, private sector loans are regularly forecast in the context of the semiannual Broad Macroeconomic Projection Exercise. Our paper evaluates the forecast accuracy of univariate and multivariate models.

Second, the semiannual Financial Stability Report of the Oesterreichische Nationalbank (OeNB) periodically evaluates the development of loans to households[2] from the financial stability perspective. Our paper proposes new indicators which can be used in the Financial Stability Report on a regular basis. We suggest a quantitative measure for long-run equilibrium loans to households that enables us to evaluate whether these loans develop in line with fundamental macroeconomic variables (GDP, financing costs). The suggested indicator is properly specified from an econometric point of view. However, it should be complemented with additional judgmental information or information from data not applicable to our econometric analysis.[3] The indicator is a quantitative measure of the degree of financial (in)stability. The ECB regularly uses a similar indicator in its financial market assessments for the euro area. Therefore, it would also be possible to compare OeNB and ECB results and also to draw conclusions about whether sources of unbalanced credit growth are domestic or not.

Additionally, an econometric model of household loan developments allows for systematic quantification of the impact of macroeconomic developments on household credit growth over the business cycle. Hence, possible sources of unbalanced credit growth can further be broken down and attribtued to macroeconomic developments such as GDP growth or financing costs.

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[2] *We use the terms loans or credit to households to denote MFI (monetary financial institution) loans to the household sector.*

[3] *For instance, additional indicators on financing conditions (from the Bank Lending Survey), information on private sector wealth (e.g. housing wealth) and information on housing prices. However, the time period for which the mentioned data is available is too short to be applicable to our econometric analysis.*

Refereed by:
Christoffer Kok Sørensen, ECB,
Eva Ubl, OeNB

We follow more or less the same approach as Calza et al. (2003a and 2003b), who conduct an analysis for the euro area as a whole. They show, in line with other studies,[4] that the development of private sector loans[5] in the euro area can be reasonably explained by aggregate macroeconomic variables and find evidence for a stable long-run relationship between real loans, GDP and real interest rate variables.

These papers employ log-linear relationships between a credit variable and its determinants. In our paper we also find weak evidence for a log-linear cointegration relationship in our econometric specification. Hence, we did not conduct a threshold cointegration analysis accounting for possible nonlinearities in lending.[6]

In section 2, we provide a short literature overview on empirical work explaining credit variables and argue our choices with respect to included variables and specifications. After univariate analysis of our credit data in section 3 and unit root testing, we conduct a cointegration analysis in section 4. In section 5 we discuss the implications for financial stability. In section 6 we decompose credit growth into contributions by GDP, inflation, and the interest rate. We compare forecasts of multivariate models with univariate models in section 7. Section 8 concludes.

2 Model Specification

2.1 What Others Have Done

Not very many previous studies on the determinants of household (or private sector) credit development are available for Austria.[7] Kaufmann and Valderrama (2004) investigate the relation of interest rate and demand variables to household loans and in particular the asymmetry of the reaction of lending to these variables over the business cycle within a Markov-switching vector autoregressive model. They conclude that spending and interest rate variables have an insignificant or low effect on lending. Furthermore, Kaufmann (2001) reveals asymmetric effects of monetary policy on bank lending over the business cycle in Austria. During the economic recovery from the second quarter of 1993 to the second quarter of 1998 the effect of interest rate changes on bank lending is insignificant, while from the second quarter of 1990 to the first quarter of 1993 interest rate changes have a significant, albeit counterintuitively positive, effect on bank lending.

However, numerous econometric studies of other countries' credit variables have been conducted. The abovementioned papers by Calza et al. (2003a and 2003b) both estimate a vector error correction model (VECM) for the euro area with the log of the real credit stock, the log of real GDP and cost variables (both a long-term and a short-term real interest rate in the former study and a constructed composite real interest rate in the latter). Other studies using a VECM or an error correction model (ECM) with one cointegrating relation where a credit variable is explained by an income variable and a cost variable have been done by

[4] *A short literature overview on similar studies of aggregate credit data follows below.*

[5] *They looked at credit to the whole private sector, so in contrast to our study their data also included credit to private nonfinancial firms.*

[6] *Furthermore, applying a nonlinear model to forecasting would require that the nonlinear feature found in the historical sample is also present beyond the sample forecasting period.*

[7] *In this overview we solely focus on papers explaining credit to households and/or the entire private sector. Papers looking at credit to private corporations only, such as Friedman et al. (1993), are therefore not included.*

Blundell-Wignall and Gizycki (1992), Brzoza-Brzezina (2005), Hofmann (2001), and Fitzpatrick and McQuinn (2007); the latter two also included a variable for property prices. Kiss et al. (2006), Backé et al. (2006) and Boissay et al. (2005) proceed similarly but look at the ratio of credit to GDP, all in the context of the rapid credit growth in some of the CEE countries. Safaei and Cameron (2003) analyze similar variables but they estimate a vector autoregressive (VAR) model in first differences. Furthermore, Suzuki (2004) and Jeanfils (2000) both estimate equations explaining the level of credit variables as part of macroeconometric models, the former as a part of a structural VAR model in levels for Japan and the latter ECMs with mortgage and consumption credit for Belgium.

One problem in most of the studies mentioned so far is that the estimated demand equations may also capture supply effects. This is also mentioned by several of their respective authors. Kakes (2000) for the Netherlands and Hülsewig et al. (2004) for Germany try to account for that. Both estimate a VECM with a larger number of variables. Most importantly, they include two interest rates: one as a proxy for the rate to be paid for the loan and one at which the lending banks can borrow money themselves. In both studies, the cointegration rank is larger than one. By imposing restrictions on the cointegrating vectors, the authors are able to identify demand and supply equations. The former includes the interest rate to be paid for loans and GDP and the latter the differential between the two interest rates (plus aggregate banks' equity in Hülsewig et al., 2004, and a time trend in Kakes, 2000).

2.2 Our Choice of Specification

We will follow the majority of the above-mentioned papers and try to explain our credit variable of interest with an ECM using one proxy for economic activity and one proxy for the cost of credit. An ECM specification would be very attractive in our case, as one of the outcomes would be one or more equilibrium relationship(s) between the above-mentioned variables. They can be interpreted in the light of financial stability because larger deviations from the equilibrium relationship(s) may point toward tensions in the financial market. For instance, if a stable long-run relationship between real credit and real growth as well as real financing costs can be found, faster actual real credit growth than expected from this long-run relation signals increasing financial instability.[8]

The Financial Accounts are our data source for the credit granted to Austrian household sector by monetary financial institutions. The series starts in the last quarter of 1981. We consider stocks rather than flows due to the higher importance for financial stability issues. Unlike many other authors, such as Calza et al. (2003a and 2003b), we look at households only instead of the whole private sector; this has both pros and cons: On the one hand, the factors affecting corporate and household loan demand, respectively, can be expected to differ substantially. For example, firms have access to sources of external finance other than credit – the share of capital market instruments has

[8] *Furthermore, if there is an equilibrium relationship between these variables, a VAR in differences only would be misspecified anyway (see for example Hamilton, 1994, p. 652).*

grown recently in Austria.[9] Hence, it makes more sense to model household credit separately from corporate credit, as due to the data limitations in the Austrian case, explaining the latter subcomponent may be very difficult. On the other hand, reclassifications between the household and the nonfinancial business sector were performed in Q2/2004 and Q4/2005. However, our series is adjusted for that factor as well as for the effects of changes in the exchange rate on existing loans in foreign currency.[10]

Our proxy for income and economic activity in general is real GDP; the GDP deflator is also used to calculate the real stock of credit out of the nominal data. As a cost variable, we use real interest rates where expected inflation is replaced by the relative yearly difference of either the CPI or the GDP deflator. We will compare specifications based on both deflators in terms of forecasting performance. The choice of the nominal interest rate was heavily constrained: the only nominal interest rates available from the early 1980s on are a three-month money market rate and the overall secondary market rate of federal government bonds (from 1986 on, data on the ten-year-secondary market yield would also be available).

In the future, more detailed analyses will be possible, as then the length of available data series on subcomponents of credit to households and the corresponding interest rates (like the interest rate for housing credit) will be sufficient. A simple correlation analysis indicates that the secondary market rate of federal government bonds may be a better choice than the three-month interest rate.[11]

We chose a quarterly frequency, which is standard in the literature. The data series start in 1981, so we have about 100 observations for estimation. Monthly data on credit are available only from 11/2001 onward, meaning that the number of available periods is lower than for quarterly data. In addition, the slight increase in information on the time from late 2001 on would come at the price of having to use data which is estimated (GDP) or highly volatile (industrial production as a proxy for GDP).

Both the ECB (2007) and Hofmann (2001) conclude that standard macroeconomic determinants as mentioned above miss the fact that loans to households are largely a reflection of borrowing for house purchases (in our data, housing loans currently make up around two-thirds of total household loans). Consequently, the former authors add household wealth (financial plus housing wealth) and the latter house prices as an additional explanatory factor. However, in Austria there has not been a housing boom since the early 1980s, so we do not think it is necessary to include a house price index.

We will not follow the approach of Hülsewig et al. (2004) and Kakes (2000) of having separate demand and supply equations in our dynamic system. First, according to the econometric evidence Frühwirth-Schnatter and Kaufmann (2006) provide, supply effects are only minor in Austria. And even if they were larger, this would

[9] *See for example Andreasch et al. (2006, p. 13–14).*

[10] *The adjustment was made by linking the stock data analyzed here to flow data on newly granted loans (many thanks again to Michael Andreasch).*

[11] *The correlation of the secondary market rate (monthly data from 12/1995 until 11/2007) with housing and consumption credits is much higher (both around 0.85) than the correlation of the three-month rate with these two rates (both around 0.7).*

change "only" the interpretation of the coefficients in the cointegration relationship(s). The coefficients could not be interpreted as demand elasticities anymore, but would still capture an equilibrium relationship.

3 Univariate Analysis of the Data[12]

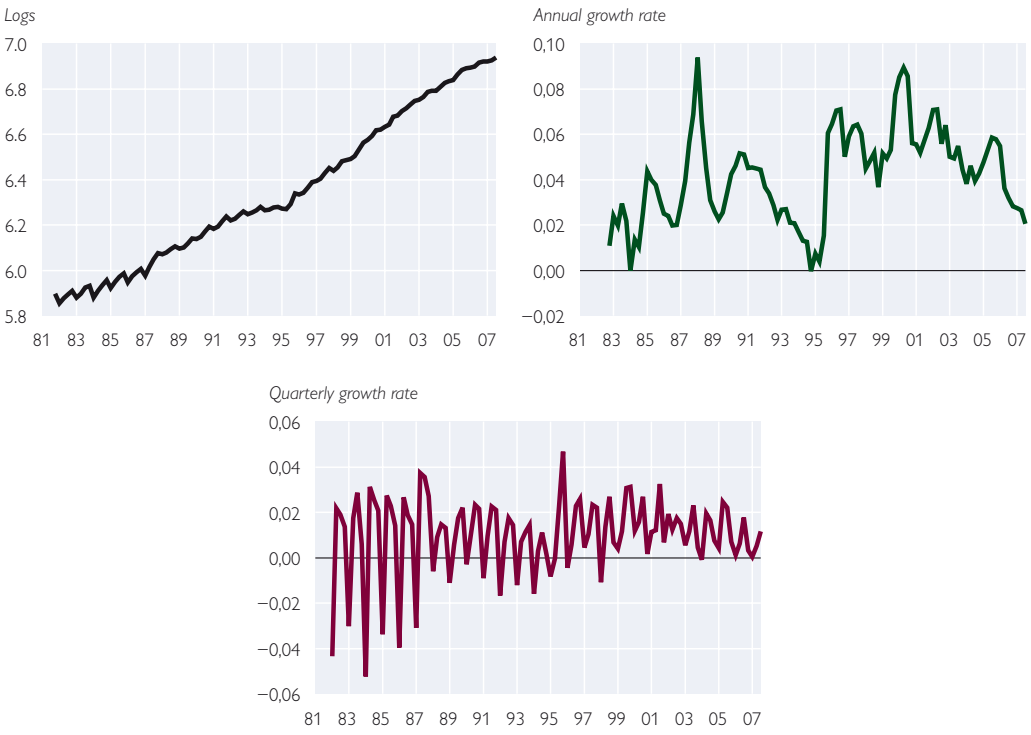
3.1 A First Look at Credit to Households

Chart 1 shows the level of Austrian loans to households deflated by the GDP deflator together with the quarterly and annual difference of real loans. What stands out is that the time series show a considerable change in the slope of the trend after the third quarter of 1995, which may be due to changes in the primary statistics. Furthermore, real interest rates have been trending downward since regulatory changes were made in the wake of Austria's EU accession.

The first differences of real loans to households (in logs) show a clear albeit evolving seasonal pattern. There are at least three periods of varying seasonality. The first period until about 1988 exhibits the strongest seasonal fluctuations, the intermediate period until about 1995 more moderate seasonal fluctuations and the period from 1995 up to now shows seasonal fluctuations that are less pronounced than in the intermediate period. Taking fourth differences (the annual growth rate) of real loans removes much of the seasonality.

Chart 1

Real Loans to the Household Sector



Source: OeNB, WIFO.

[12] *Unit root tests and the multivariate analysis in section 5 were done with JMulti, a public domain software (http://www.jmulti.de).*

3.2 Unit Root Tests

One difference compared to the papers mentioned in the literature overview is that – following the suggestion of Franses and McAleer (1998) – we do not use seasonally adjusted data. According to their literature overview on seasonality, seasonal adjustment can lead to changes in the persistence properties of the univariate series and weaker evidence of cointegration.

As we deal with data not adjusted for seasonality, we conduct not only standard but also seasonal unit root tests. As a standard unit root test we applied the Augmented Dickey-Fuller (ADF) test. It suggests that (the log of) nominal credit, (the log of) real credit $\ln(K_t)$, (the log of) real GDP $\ln(Y_t)$, the secondary market yield of government bonds (SMR of govt. R_t), and the three-month-interest rate R3 should be modeled as I(1) variables. The seasonal unit root tests (HEGY tests)[13] confirm these results and further indicate that the logs of real GDP and real credit seem to have seasonal unit roots as well. The evidence that the fourth differences of (the log of) the GDP deflator π_t and of the CPI are I(1) is weaker. In case of the fourth difference of (the log of) the GDP deflator, nonstationarity – necessary for π_t qualifying as an I(1) variable – was not rejected at the 5% significance level but at the 10% level. The case of the fourth difference of the CPI is similar, as rejection of nonstationarity depends on the number of included endogenous lags in the ADF test.[14]

4 Multivariate (Cointegration) Analysis

Now, as we have found evidence for regular (zero frequency) nonstationarity of all analyzed variables, we investigate whether there is an equilibrium (cointegration) relationship between them. Here we follow again a recommendation of Franses and McAleer (1998) according to which even in the case of seasonal cointegration standard VECMs or ECMs can do very well in short-run forecasts when using seasonal dummies. Therefore, we do not conduct an analysis of seasonal cointegration.[15] Like our main references, we test for the cointegration rank (and later specify an ECM) with a trend in the data but without trend in the cointegration relation.

In this section, we use the secondary market yield of government bonds as an interest rate variable and the annual growth rate of the GDP deflator as an inflation variable.

4.1 Rank Tests

First, we have to estimate the cointegration rank. Table 1 shows the result for the Saikonnen and Lütkepohl test with five lags in levels and shift dummies starting in the first quarter of 1988 (because of the break in the GDP deflator mentioned earlier)[16] and in the

[13] *HEGY refers to the work of Hylleberg, Engle, Granger and Yoo (1990), who proposed a test for unit roots at seasonal frequencies (in our case these would be the semiannual and the annual frequency). ADF tests are tests for regular or zero frequency unit roots only.*

[14] *With four endogenous lags (as suggested by the Akaike and final prediction error criteria), the ADF test rejects nonstationarity of the fourth difference of the CPI but not without endogenous lags (as suggested by the Hannan-Quinn and Schwarz criteria).*

[15] *Furthermore, of our included variables, only real credit and real GDP have common seasonal unit roots.*

[16] *The break in Q1/1988 is due to the GDP deflator, which was calculated on the basis of GDP series according to ESA 1995 (from Q1/1988) and SNA 68 GDP series (up to Q4/1987). Both series were linked with a level shift, as no homogeneous GDP series from 1982 until now is available.*

Table 1

Cointegration Rank Test with Standard Variables

Rank	Likelihood ratio	P-value	90% critical value	95% critical value	99% critical value
r=0	35.65	0.0514	32.89	35.76	41.58
r≥=1	14.40	0.3025	18.67	20.96	25.71
r≤=2	4.70	0.3725	8.18	9.84	13.48

Source: Authors' calculations.

Note: Saikonnen and Lütkepohl test.
Variables: log of real credit and GDP, secondary market yield and yearly difference of the GDP deflator.
Specification: trend orthogonal to cointegration relation, five lags in levels – as suggested by the Hannan-Quinn Criterion – and seasonal dummies, two shift dummies (Q1/1988 to Q3/2007; Q4/1995 to Q3/2007).
Sample range: Q3/1983 to Q3/2007, T = 97.

fourth quarter of 1995 (because of the break in the credit series).

This may be one of the most plausible specifications, but unfortunately its result is not robust with regard to the cointegration test used (the Saikonnen and Lütkepohl or the Johansen test) nor to the choice of lag length.[17] Thus there is only weak evidence for an equilibrium relationship. Using nominal variables only (and excluding the inflation proxy) to avoid a "spurious" cointegration relationship mainly driven by the GDP deflator yields a relatively similar picture.

4.2 Error Correction Model

Given this (weak) evidence for rank 1 in our system, we have the following cointegration relationship where the residuals should be stationary:

$$\ln(K_t) + \beta_2 \ln(Y_t) + \beta_3 R_t + \beta_4 \pi_t + \\ + CONST + S1 + S2 + S3 = u_t \qquad (1)$$

where $\ln(K_t)$ is the log of real credit, $\ln(Y_t)$ is the log of real GDP, R_t is the secondary market yield of government bonds, π_t is our measure for inflation (the fourth difference of the log of the GDP deflator), *CONST* is a constant and $S1$, $S2$, $S3$ are seasonal dummies for quarters 1, 2 and 3. The results are shown in table 2.

It shows that the estimated equilibrium elasticity of real credit with regard to real GDP is 1.662, which is in line with most estimates of the previously mentioned studies.[18] This means that along the implied equilibrium path, the growth rate of real credit has to be higher than that of real GDP, which is also the case in our data. The semielasticity of the (nominal) interest rate[19] is relatively high. We try to capture the breaks with impulse dummies outside the cointegration relation only. Using shift variables inside the relation would artificially decrease the estimated elasticity for output below 1.

[17] *Furthermore, the result is not to the use of real interest rates instead of nominal interest rates and inflation separately.*

[18] *Calza et al. (2003a and 2003b) get lower estimates that are still significantly larger than 1. In the study of Hofmann (2001) covering several countries (Austria is not included), some elasticities are higher and some are lower. Blundell-Wignall and Gizycki (1992) obtain an estimate very similar to ours using nominal variables. Hülsewig et al. (2004) and Kakes (2000) obtain estimates of 1 and 1.7 in their demand equations.*

[19] *Imposing the restriction $\beta_3 = -\beta_4$ like most of the above-mentioned papers does not change the result very much. The semielasticity with regard to real interest rates would be 0.0648, and according to a Wald Test, this restriction cannot be rejected at the 10% level.*

Table 2

Key Coefficients of the Error Correction Model[1]

	Coefficient	Standard deviation	P-value	T-statsitic
	Equilibrium relationship			
$\ln(K_t)$	1.000	×	×	×
$\ln(Y_t)$ (β_2)	−1.662	0.105	0.000	−15.870
R_t (β_3)	0.060	0.011	0.000	5.296
π_t (β_4)	−0.076	0.012	0.000	−6.321
	Adjustment coefficient of the EC term			
	−0.057	0.017	0.001	−3.415

Source: Authors' calculations.

[1] The entire error correction model is available on demand.

Note: Reduced-rank maximum likelihood estimation.
Specification: includes trend orthogonal to cointegration relation, four lags in differences as suggested by the Hannan-Quinn criterion, seasonal dummies, two shifts orthogonal to cointegration relation (Q1/1988 to Q3/2007; Q4/1995 to Q3/2007).
Sample range: Q3/1983 to Q3/2007, T = 97.

However, the results of the specification tests are not completely satisfying. Lagrange-Multiplier-type and Portmanteau tests indicate that the autocorrelation of the residuals (for lags larger than four) of the whole VECM is significantly different from zero. This restricts the possible uses of the model presented above: it is unlikely to perform well in forecasting, and impulse responses will be unreliable.

5 Implications for Financial Stability

However, the error correction model has its uses. Looking at the autocorrelation of the residuals of the real credit equation only, one can see that the residuals are not significantly different from zero. Furthermore, as table 2 indicates, the adjustment coefficient in the ECM explaining real credit is significantly negative. So there is evidence

Chart 2

Error Correction Term

Deviation from equilibrium real loans

Source: Authors' calculations.

Note: Error correction term printed by JMULTI, recalculated in the EViews-way by regression on a constant and seasonal dummies.

that equation 1 still captures an equilibrium relationship to which real credit adjusts. The error correction term is plotted in chart 2. It shows that there has not been a significant loan overhang or shortfall in Austria in the last years.[20]

This has important implications for financial stability in Austria. Unlike in other euro area countries such as Spain or Ireland, real credit to the household sector seems to have developed in line with macroeconomic fundamentals in Austria. Variables like property prices (which played a role for credit development in other countries; this is also indicated in ECB, 2007) are not needed to obtain an error correction term (the "loan overhang or shortfall") close to zero in the last years.

6 Decomposition of Contributions to Growth

Our preferred ECM can be used to calculate the contributions of the explanatory variables to the growth of real credit. In dynamic specifications like ours, lagged endogenous variables must be taken into account, as they are functions of the explanatory variables. Hence, the lagged endogenous variables were recursively substituted out.[21] The growth contributions are plotted in chart 3.

Our ECM does not explain part of real loan growth (not shown in the chart). The growth contribution of this residual is fairly small from 2002 onward (about 0.16 percentage points of real loan growth).

Real GDP made the biggest contribution to real loan growth over the period from 1997 to 2007.[22] More recently, however, the growth contribution of the long-term interest rates has been growing on account of the strong decrease in nominal interest rates from the beginning of 2000 until about 2005. Inflation (as measured by the

Chart 3

Household Loan Growth Decomposition

Percentage point contributions

Source: Authors' calculations.

Note: "Deterministics" is defined as the growth contributions of the initial conditions and the impulse dummies accounting for the breaks in the series.

[20] *Unless one argues that credit has grown too strongly over most of the sample period.*

[21] *The complexity of this task increases heavily with the number of recursive substitutions of lagged endogenous variables. Therefore, we stopped at 20 recursions implying that the initial conditions for calculating growth contributions are five years in the past.*

[22] *We do not report on the growth decomposition before 1997, as it seems to be less meaningful due to the use of the time dummies in the ECM mentioned before.*

GDP deflator) had a sizable negative effect on credit growth at the end of the 1990s after a period of prolonged downward movement of inflation (lower inflation expectations mean higher real interest rates).

7 Forecast Evaluation

7.1 Univariate Processes to Forecast Real Household Loans

Given the results of section 4, we also look at the performance of univariate models in forecasting. These models are an important benchmark, as they need relatively little information. Probably the most popular univariate process accounting for stochastic trends and seasonality is the Box and Jenkins (1970) airline model:

$$\Delta\Delta_4 \ln(K_t) = (1-\theta_1 L)(1-\theta_2 L^4)u_t \quad (2)$$

where Δ_i is the difference operator defined as $\Delta_i y_t := y_t - y_{t-i}$ and L^i is the lag operator defined as $L^i y_t := y_{t-i}$. The other variables are defined in section 4.2. The airline model captures the data-generating process well. However, it proves to be sufficient to apply first differences to yield a stationary series.

We estimate three competing ARIMA (Auto-Regressive-Integrated Moving-Average) models in first differences. All ARIMA models are free of residual autocorrelation.

7.2 Comparison of VECMs and ARIMAs

We then conduct a detailed analysis of the accuracy of forecasting of four VECMs and four ARIMA models. The VECMs differ in the price variables[23] and the long-term interest rate used: VECM1 (including the CPI and the SMR), VECM2 (including the CPI and a constructed interest rate weighted with outstanding volumes of foreign currency loans), VECM3 (including the GDP deflator and the SMR) and VECM4 (including the GDP deflator and the interest rate weighted with outstanding volumes of foreign currency loans).[24] The ARIMAs include the airline model and three ARIMAs (AR1, AR2, AR3)[25].

Our objects of interest are the prediction errors one to eight quarters ahead; we calculate the root mean squared prediction errors (RMSPE) for these quarters. The sampling scheme is recursive, i.e. the sample used to estimate the model parameters grows as predictions for successive periods are made. More precisely, we use the observations until Q3/2001 to construct an initial set of parameter estimates that are then used for the first prediction for the period from Q4/2001 to Q3/2003. We then estimate the models with observations up to Q4/2001 and make the second prediction eight quarters ahead. The final prediction from Q4/2005 to Q3/2007 is performed with parameter estimates based on the observations up to Q3/2005.

Comparing the competing models (see chart 4 for a plot of the RMSPEs), we can state the following results: All VECMs broadly perform worse than the ARIMAs. This does not come as a big surprise, given the disappointing results of the specification tests of our VECM. The AR2 and AR3 models are

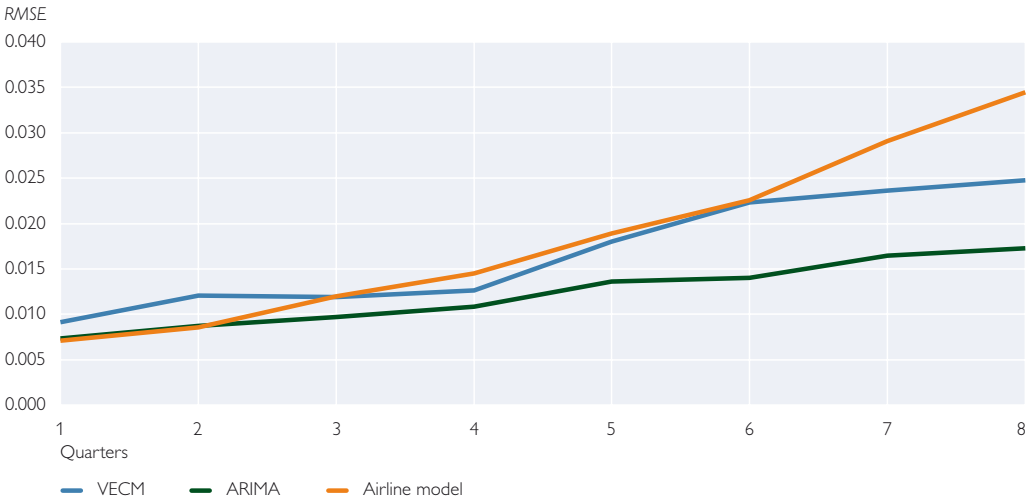
[23] *Credit to households, however, is always deflated by the GDP deflator.*

[24] *This rate is constructed by weighing the secondary market yield of Austria, Japan and Switzerland by the share of their respective currencies in credit of the previous quarter. This accounts for the fact that since the late 1990s a significant part of Austrian credit to households is in foreign currency.*

[25] *AR1: autoregressive term at lag 4, seasonal dummies and constant;*
AR2: autregressive process of order 3, moving average process of order 3 and constant;
AR3: autregressive terms at lags 2 and 4, moving average term at lag 2, seasonal dummy at lag 1 and constant.

Chart 4

Root Mean Squared Prediction Errors of Competing Models



Source: Authors' calculations.

Note: ARIMA model: autoregressive terms at lags 2 and 4, the second order component of a moving average term at lag 2 and a seasonal dummy at quarter 1; the variables in the VECM are real loans to households, real GDP, the annual growth rate of the GDP deflator and the secondary market yield; the Airline model as defined in equation 2.

best in terms of forecast performance for three to eight quarters ahead. The airline model is best for one and two quarters ahead; however, the RMSPEs quickly increase. The forecast performance of the VECMs with different interest rates does not differ very much. The inflation measure based on the GDP deflator does better than the one based on the CPI on short horizons and worse on longer ones.

8 Conclusion

In this paper, we analyze credit to households in Austria. We find weak evidence for cointegration between real credit, real GDP, a nominal interest rate and inflation. Unfortunately, a VECM including these variables does not pass the most important specification tests. This may be one of the main reasons why ARIMA models are doing much better in forecasting the level of real credit, and this even over a two-year horizon. Against this background, we suggest using univariate models to forecast loans to households. However, an ECM with a credit equation only is well specified and can be used for other purposes.

The EC model indicates that, contrary to what could be observed for the euro area as a whole, there has been no loan overhang or shortfall over the last years in Austria. A growth decomposition shows that the largest contribution to real credit growth comes from real GDP.

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Corporate Governance and Credit Institutions

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This article examines the concept of corporate governance and provides an overview of the current state of legislation at the European and Austrian level, highlighting the crucial importance of transparency and disclosure requirements as components of corporate governance. A comparison of legal bases in Austria and the EU reveals that Austria's national implementation of the Banking Directive and its financial market reform in 2007 brought about significant advances in this area for Austrian credit institutions. Good corporate governance at credit institutions is a key factor in maintaining a stable financial market.

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Corporate governance issues essentially involve questions on how to manage a business in an optimal manner and how to design its internal organization in such a way that adverse developments can be detected and avoided as early as possible. As regulations on corporate governance for credit institutions are also an especially important part of the legal framework for a stable financial market, this article examines how Austrian legislation has responded to these issues.[1]

1 Definitions and Objectives of Corporate Governance

Among the many available definitions of corporate governance, two in particular appear to reflect the content of the term with sufficient clarity. According to Nowotny (2000), corporate governance refers to a legal and de facto framework of rules and policies for the management and supervision of a company. Corporate governance thus refers to the relationships between the company's various stakeholders. Haberer (2003) defines corporate governance as the legal organization of company management and control in an entrepreneurially optimal manner.

Definitions of corporate governance become more precise when the specific characteristics of individual industries are taken into account. A legal definition of corporate governance which is tailored to credit institutions can be found in Directive 2006/48/EC of the European Parliament and of the Council of 14 March 2006 relating to the taking up and pursuit of the business of credit institutions (referred to in this article as the "Banking Directive").

Home Member State competent authorities shall require that every credit institution have robust governance arrangements, which include a clear organisational structure with well defined, transparent and consistent lines of responsibility, effective processes to identify, manage, monitor and report the risks it is or might be exposed to, and adequate internal control mechanisms, including sound administrative and accounting procedures.

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This definition very clearly structures the essential components of good "internal" corporate governance for credit institutions:[2] organization, rules of good conduct for decision makers, internal (risk) control and transparency. Omitting one of these elements of good corporate governance may precipitate the collapse of a credit institution. For this reason, three pillars form the basis of financial market stability under the New Basel Capital Accord (Basel II). Pillar 1 governs the calculation of minimum capital requirements. In implementing Pillar 2 of the Basel II framework, the directive incorporates organizational requirements under the term "governance". Pillar 3 calls for transparent and timely reporting to the general public. The Basel Committee on Banking Supervision acted on the conviction that market discipline among credit institutions should be reinforced by disclosure requirements and thus by enhancing transparency.

Corporate governance for credit institutions entails responsible management and control which aims to ensure financial stability as well as sustainable long-term value creation. This objective best serves the interests of the real economy and job security.

In the past, corporate governance reforms were necessary in order to ensure market discipline and ethics in a global and volatile environment by implementing uniform standards throughout the EU. Profit expectations should not be the only motive for corporate action. The harmonization of legal frameworks constitutes a substantial contribution to financial stability and, in addition, promotes fair competition within the EU. Various aspects of the legal definition above lead to the achievement of these objectives: First, rules of good conduct require management bodies to ensure sound corporate management. Second, organizational measures as well as intensive control measures – also supported by qualified and independent supervisory boards – serve to reduce the risks involved in banking transactions. These standardized benchmarks support the work of national banking supervisory authorities in the EU.

Credit institutions are important intermediaries in an economy, and their risk must be captured in a special manner. The Commission has designed broad initiatives to improve corporate governance in the EU.

2 Legal Bases in EU Legislation and Recommendations of Other Institutions

2.1 European Commission Action Plan to Improve Corporate Governance

Various accounting scandals, such as those at Parmalat in Italy, Ahold in the Netherlands and the ENRON Group in the U.S., contributed to making management issues the subject of European Commission legal initiatives in the field of company law. In 2002, an expert group led by Professor Jaap Winter presented a report in which they recommended harmonizing the national legal bases with respect to corporate governance and defining clear and uniform disclosure requirements instead of creating a single European code of corporate governance. In order to implement the group's recommendations, the Commission approved the action plan "Modernising Company Law and Enhancing Corporate Governance in the European Union – A Plan to Move

[2] *"External" corporate governance refers to supervisory authorities, external auditors and market participants. Transparency plays a key role in internal as well as external corporate governance.*

Forward" (COM/2003/0284)[3] in 2003. This initiative focuses on strengthening the rights of shareholders, enhancing the protection of employees and creditors, and increasing the efficiency and competitiveness of businesses.

The action plan was essentially implemented in Directive 2006/46/EC of the European Parliament and of the Council of 14 June 2006. In order to promote credible accounting processes, the directive requires the management board and supervisory board to assume collective responsibility for annual financial statements and annual reports. The responsibilities of the supervisory board were also expanded, and exchange-listed companies are required to publish a corporate governance statement.

In order to amplify the external effect of the action plan, the European Commission established the European Corporate Governance Forum. This forum performs an advisory function on the one hand and works to promote the harmonization of national corporate governance codes on the other.

2.2 Corporate Governance and Transparency in the Banking Directive

Article 22 and Annex V ("Technical Criteria Concerning the Organization and Treatment of Risks") of the Banking Directive fundamentally address the issue of corporate governance. In order to ensure the uniform interpretation and application of these provisions in the EU, the EU legislature assigned the Committee of European Banking Supervisors[4] (CEBS) the task of drawing up clear guidelines for the sound governance of credit institutions; those guidelines are discussed in section 2.3 below.

A separate annex to the Banking Directive (Annex XII, "Technical Criteria on Disclosure") is likewise devoted to transparency as a key component of corporate governance, providing for a comprehensive control system for credit institutions. In addition to banking supervisors, external auditors, supervisory boards and in-house control departments, the financial market itself are to serve as a mechanism of supervision. The general conditions for banking transactions will become more secure if market participants can assess the risk situation of other credit institutions and draw conclusions as to the overall market situation on that basis. In order to attain this objective, the necessary information must be made available to the financial market. For this purpose, specific disclosure obligations have been created for credit institutions regardless of their size and legal form of business organization. This raises the question of which disclosures can be used to mitigate asymmetries of information, which have an adverse effect on financial market stability. According to Annex XII to the Banking Directive, external reporting obligations also include risk management objectives and strategies as well as the amount of impaired and past-due exposures and own funds.

Despite its key importance for financial stability, the disclosure of corporate information is a sensitive topic and frequently conflicts with competitive strategies and confidentiality obligations. As a result, the application of

[3] *http://ec.europa.eu/internal_market/company/modern/index_en.htm*

[4] *CEBS was established in 2003 in order to advise the European Commission on issues related to banking supervision. The guidelines on internal governance can be found in Appendix 1 to the CEBS Electronic Guidebook (http://www.c-ebs.org).*

transparency obligations is subject to a broad limitation: Information is not to be disclosed in cases where confidentiality obligations apply or where such disclosures would undermine a credit institution's competitive position. However, none of the arguments militate against the disclosure of remuneration and incentive systems.

2.3 Depiction of Good Corporate Governance in CEBS Guidelines

CEBS has developed 21 guidelines which are subdivided into four sections according to the areas addressed in the definition under Article 22 of the Banking Directive. In legal terms, these guidelines can be classified as non-binding recommendations. However, as they are based on the EU legislature's intention to guide interpretations of the directive's content, these guidelines should be used as a benchmark for transposition into national law and for uniform application by national supervisory authorities. The guidelines create EU-wide standards with regard to organizational structures within a credit institution, risk management as well as internal reporting and control, thus their significance should not be underestimated.

The guidelines on internal corporate governance focus on the duties of the management body in their management and organization of the credit institution, in addition to providing information on effective internal control. The management body is assigned responsibility for corporate governance and for conducting regular assessments of its governance arrangements. The same applies to risk management. Transparency (Guideline on Internal Governance (IG) 20) in business policy and in remuneration and incentive structures is mentioned only as a desirable addition in the explanatory remarks.

2.4 Guidelines of the Organisation for Economic Co-operation and Development (OECD) and the Bank for International Settlements (BIS)

The concept of corporate governance for credit institutions has also seen further development at the international level. The OECD developed its "Principles of Corporate Governance" as a guideline for national legislators. The Financial Stability Forum included these principles among the 12 key standards for financial market stability.[5]

On the basis of the OECD principles, the Basel Committee on Banking Supervision drew up a practical guide in February 2006 entitled "Enhancing Corporate Governance for Banking Organisations," defining eight principles to support the work of supervisory authorities.

These principles essentially refer to the responsibility of qualified and experienced management for corporate governance; the definition and communication of strategic corporate objectives and values for the external presentation of the credit institution and as guidelines for employees; the definition of clear responsibilities within the bank's organization; ensuring the appropriate qualifications and independence of supervisory board members, including a periodic self-assessment process; effective internal control functions, also for monitoring compliance with corporate governance provisions; appropriate remuneration policies which are consistent with the bank's

[5] *See www.fsforum.org/cos/key_standards.htm*

objectives, strategies and values; and transparency in corporate governance as a necessary prerequisite for assessing the performance of board members. This framework regards transparency as an essential element of effective corporate governance.

3 Legal Bases of Corporate Governance for Credit Institutions in Austria

In Austria, the implementation of the Banking Directive (2006/48/EC) in the amendment to the Austrian Banking Act (Federal Law Gazette I No. 141/2006) served to enhance the quality of national corporate governance regulations. In particular, this amendment affected Article 26 (Disclosure Obligations) and Article 39 (General Due Diligence Obligations) of the Banking Act, which are discussed in sections 3.1 and 3.2 below.

The subsequent reform of Austrian financial market supervision in 2007 (Federal Law Gazette I No. 108/2007) established specific corporate governance provisions for all credit institutions, with application thresholds defined in accordance with the principle of proportionality. Specific aspects of this reform are covered in section 3.3 (Cooling-Off Period), section 3.4 (Fit and Proper Test), section 3.5 (Audit Committee) and section 3.6 (Reporting Obligations).

Under the new heading "Special Requirements for Bodies of Credit Institutions" (Article 28a of the Banking Act), the importance of the supervisory board chairperson is clearly enhanced by the stricter requirements applicable to that position. Until the supervisory reform in 2007, there was an obvious deficit in this area of legislation. In line with CEBS guideline IG 11 and the principles defined by the OECD and BIS, the Austrian legislature for the first time concretely specified the independence and qualifications of the supervisory board chairperson for systemically important credit institutions, which require supplementary supervision. Article 28a paragraph 5 of the Banking Act provides for a threshold of EUR 750 million in total assets at the time when the supervisory board chairperson is elected; above that level, the chairperson is subject to additional requirements. This threshold, which is lower than that applicable to the audit committee (i.e., EUR 1 billion pursuant to Article 63a paragraph 4 of the Banking Act), underlines the importance of the supervisory board. This more stringent regulation serves to promote the stability of the Austrian banking system.

The sections below describe specific aspects of Austrian legislation on corporate governance.

3.1 Disclosure Obligations under Article 26 of the Banking Act and the Disclosure Regulation 2007

Through disclosure requirements, the legislature aims to contribute to improving risk control, market strategy and internal management. In its implementation of Annex XII to the Banking Directive, the Austrian Financial Market Authority (FMA) issued a regulation based on Article 26 of the Banking Act detailing the information to be disclosed. These disclosure obligations refer to the credit institution's organizational structure, own funds structure, minimum capital requirements, risk management, risk capital position, credit and dilution risk, internal market risk models, equity exposures not held in the trading book, securitizations and internal rating systems. In this context, risky positions are a topic of particular interest.

While the content of disclosures is defined precisely, the credit institution has a degree of discretion with regard to the medium used. Credit institutions may disclose information on the Internet, in newspapers or in magazines, but they are required to disclose all such data and information in the same medium.

Disclosures are limited by confidentiality interests, meaning that a credit institution may omit disclosures if they could undermine the institution's competitive position. Moreover, information which the credit institution deems "immaterial" need not be published.

The credit institutions themselves are responsible for the content of their disclosures. In order to ensure that information relevant to financial stability is disclosed despite the limitation under Article 26 paragraph 5 of the Banking Act, credit institutions are required to ensure the adequacy of the disclosed information by means of binding internal policies. Moreover, credit institutions are required to verify their disclosures and to publish information relevant to the financial market more frequently if necessary.

The decisive question is how these disclosure obligations are enforced in Austria. The Basel Committee was aware that national supervisory authorities may use different enforcement methods. These methods vary from country to country, ranging from moral suasion of a bank's managing directors to warnings or even monetary fines. The FMA verifies compliance with disclosure obligations in its ongoing monitoring of credit institutions, which is also carried out in the form of management meetings. There are no provisions for a specific mode of or for specific sanctions in the FMA's monitoring activities, and as a result the supervisory authority generally has recourse to all the instruments described under Article 70 of the Banking Act. In cases where a credit institution violates disclosure obligations, Article 70 paragraph 4 of the Banking Act may be applied. Under this provision, the FMA is to issue an administrative ruling which instructs the credit institution on pain of penalties to restore legal compliance – mainly by disclosing the relevant information – within a reasonable period of time. Violating disclosure obligations does not constitute an administrative offense. Although the possibility of responding directly to non-disclosure by increasing own funds requirements was explicitly omitted in the conception of Pillar 3 of the Basel II framework, in cases where credit institutions use the internal ratings-based approach (IRB), the advanced measurement approach (AMA) or credit risk-mitigating techniques (Articles 16 to 18 of the Disclosure Regulation), such failures to disclose information bring about an immediate penalty because the lower risk weights or special methods may no longer be applied (Urbanek, 2007).

3.2 General Due Diligence Obligations under Article 39 of the Banking Act

Article 39 of the Banking Act contains the key provisions regarding corporate governance and was expanded considerably in the implementation of the Banking Directive. However, the Banking Act still does not specify the characteristics of good corporate governance. For this reason in particular, the detailed recommendations of CEBS are especially significant.

These provisions address the managing directors of a credit institution, not the members of its supervisory board. In managing the credit institution, directors must exercise the dili-

gence of a prudent and conscientious manager and ensure sound corporate management with due attention to the overall economic situation. The concept of due diligence implies that the directors must possess the subjective abilities and expertise required in order to perform their duties. Naturally, they also have to comply with all applicable laws.

The purpose of these provisions is to safeguard the credit institution's assets, to protect depositors, and more generally to maintain confidence in the banking system. The Austrian legislation therefore places special emphasis on establishing appropriate and effective risk management systems, which is the responsibility of the managing directors. Credit institutions are required to have in place administrative, accounting and control mechanisms for the capture, assessment, management and monitoring of risks arising from banking transactions and banking operations. In this context, the principle of proportionality must also be taken into account. For lack of more detailed descriptions, risk monitoring is interpreted to mean that the extent of risks is sufficiently known and the risk strategy is observed (precise monitoring of limits, independent reviews, separation of functions and clear organizational structures). The instruments of risk management include the definition of limits, transaction hedges, collateral and the rejection of certain transactions. Furthermore, the Banking Act requires risk management to be designed in such a way that it also accounts for future risks (stress testing). Administrative mechanisms include the bank's internal rules, articles of association, rules of procedure and communication systems (stress tests) as well as precise compliance codes. The appropriate accounting mechanisms should yield as precise a calculation of the credit institution's risk position as possible. Control mechanisms designed to prevent errors as well as the "four-eyes" principle serve to enhance the quality of risk management. In this regard, reporting systems with ad hoc reporting obligations are closely associated with these control mechanisms (Höller and Puhm, 2007).

Article 39 of the Banking Act is also the fundamental provision which directly governs any damage claims that the credit institution may assert against its directors. The FMA may even make use of supervisory powers enabling it to prohibit a credit institution from continuing its business operations (cf. Article 70 et seq. of the Banking Act). Under Article 70 paragraph 4a of the Banking Act, the FMA may also impose additional capital requirements. Within the scope of its competence, the FMA has issued several sets of minimum standards based on Article 39 of the Banking Act (e.g., minimum standards for internal auditing).

As it was necessary to adapt Austrian legislation to international standards, the reform of financial market supervision in 2007 brought about the following new provisions and thus also the required specifications regarding internal corporate governance at Austrian credit institutions.

3.3 Cooling-Off Period (Article 28a Paragraph 1 of the Banking Act)

In order to ensure the independence of the supervisory board chairperson, the new legislation prohibits managing directors from switching directly from the management board to the position of supervisory board chairperson. Directors may not take up activities as the chairperson of the supervisory board within the same undertaking in which they previously served as direc-

tors until a period of at least two years has passed since the termination of their function as directors (cooling-off period).[6] Conflicts of interest may arise if the chairperson of the supervisory board is involved in ex-post reviews of decisions taken by the management board to which s/he previously belonged. Should a managing director nevertheless take on the function of supervisory board chairperson before the cooling-off period has passed, his/her election is to be considered ineffective.

In this context, it is important to point out that the two-year period does not apply to the deputy chairperson or other regular members of the supervisory board. Managing directors may switch to those positions and contribute their expertise in that capacity immediately upon leaving their positions on the management board.

3.4 Fit and Proper Test (Article 28a Paragraph 3 of the Banking Act)

The FMA has been assigned a new responsibility with regard to reviewing qualifications. The position of supervisory board chair may only be occupied by a person who fulfills certain economic, personal and professional qualification requirements on an ongoing basis. For example, the chairperson must find himself/herself in an orderly economic situation. The reasons for exclusion therefore include not just bankruptcy, but even a disorderly financial situation (Schmidbauer, 2008).

Article 28a paragraph 3 item 1 of the Banking Act stipulates that the chairperson must possess the professional qualifications as well as the experience necessary to perform this function. The relevant professional qualifications refer to expertise in the fields of bank finance and accounting as appropriate to the credit institution in question. In addition to theoretical knowledge, the supervisory board chairperson must also possess personal practical expertise, which in particular includes having a sound knowledge of actual workflows, and thus a "knowledge and reflection capacity" (Ruhm and Schopper, 2007).

The law's explicit reference to the chairperson of the supervisory board does not eliminate the requirement that the other members of the supervisory board must also have the expertise necessary to perform their functions[7] (Schmidbauer, 2008).

After a supervisory board chairperson is elected, the credit institution is to provide the FMA with certification that the chairperson fulfills the requirements mentioned above. However, if the FMA concludes on the basis of available information that those requirements are not fulfilled, the FMA is required to raise an objection to the election of the chairperson in question. In the case of such an objection, the chairperson's function is suspended until a legally effective ruling has been handed down by the competent court. Until that time, the provisions of the law apply to the deputy chairperson.

In the case of a supervisory board chairperson of a credit institution established in another EU Member State, the law provides for some relief in that the FMA can assume that the qualitative requirements are fulfilled as long as no indications to the contrary become known. The situation is slightly different in the case of persons who are not Austrian citizens. In such cases, no reasons for exclusion from the position

[6] *Corresponds to C Rule 55 of the Austrian Corporate Governance Code.*

[7] *Cf. IG 11 of the CEBS Guidelines and C Rule 52 of the Austrian Code of Corporate Governance.*

of supervisory board chairman related to the criteria mentioned above may exist in that chairperson's country of citizenship. This must be confirmed by the banking supervisory authority in the chairperson's home country. However, if this confirmation cannot be obtained, then the chairperson concerned must at least provide credible evidence to that effect and certify that none of the above-mentioned reasons for exclusion apply.

Under a transitional provision (Article 103g item 3 of the Banking Act), this set of requirements does not apply to previously appointed supervisory board chairpersons until the expiration of their term of office, at the latest, however, until the end of 2010.

Other special legal restrictions on the appointment of supervisory board members[8] are not affected by this provision.

3.5 Audit Committee (Article 63a Paragraph 4 of the Banking Act)

The efficiency of the supervisory board's activities is increased by subgroups which are assigned specific areas of responsibility. Borrowing from the Austrian Stock Corporation Act and Article 41 of Directive 2006/43/EC, special legal provisions have been introduced to establish an audit committee within the supervisory board. At credit institutions whose total assets exceed EUR 1 billion or which have issued transferable securities that are admitted to listing on a regulated market, the credit institution's supervisory board (or other supervisory body competent according to applicable law or the articles of association) must appoint an audit committee. This committee is to consist of at least three members of the supervisory body.[9] Moreover, the committee must include one financial expert who possesses special expertise and practical experience in the fields of bank finance, accounting and reporting as appropriate for the credit institution in question. The law does not stipulate the specific professional qualifications (such as those of an external auditor) through which this experience is gained. In order to ensure independence, the chairperson of the audit committee or the financial expert may not be a person who has acted as a director, executive or bank auditor in the last three years, or a person who has signed the credit institution's audit certificate in the last three years (cooling-off period).

In order to ensure that this committee can perform its duties efficiently, its obligations are listed explicitly in the Banking Act:

1. monitoring accounting;
2. monitoring the effectiveness of the internal control system;
3. monitoring external audits of financial statements and of group financial statements;
4. reviewing and monitoring the independence of the bank auditor, especially with regard to additional services rendered for the undertaking audited;
5. auditing and preparing the approval of the accounts, the proposed appropriation of profits, the annual report and, where applicable, the corporate governance report, as well as submitting the report on audit results to the supervisory body of the parent institution;

[8] *Article 33 of the Nationalbank Act, Article 4 et seq. of the Incompatibility Act, Article 63 of the Federal Act on Judicial Service.*

[9] *Cf. L Rule 40 of the Austrian Code of Corporate Governance.*

6. where applicable, auditing the group financial statements and annual report as well as submitting the report on audit results to the supervisory body of the parent institution;
7. preparing the supervisory body's proposal for the selection of a bank auditor.

The duties indicated under numbers 4 and 7 are not to be performed by the supervisory board's audit committee in cases where the institution's bank auditor is a legally competent auditing organization (e.g., auditors, the auditing unit of the Sparkassenverband savings banks association).[10]

3.6 Expanded Reporting Obligations for Internal Audit Units and the Supervisory Board Chairperson (Article 42 Paragraph 3 of the Banking Act)

Reporting obligations are especially important in fields which are subject to government supervision and are characterized by an asymmetry of information. As control bodies, both the supervisory board and the banking supervisor must receive sufficient information to be able to perform their monitoring functions. To this end, the new Austrian legislation has expanded the reporting obligations of internal audit units in terms of content and recipients. The internal audit unit now plays a key role within the framework of internal control mechanisms.

Two principles were defined in the law: First, instructions involving the internal audit unit must be made jointly by a minimum of two managing directors. Second, the internal audit unit must report to *all* managing directors.[11] In addition, this unit must report on audit areas and the material results of audits *directly* to the chairperson of the credit institution's supervisory board (or other supervisory body competent according to applicable law or the articles of association) and to the audit committee. Such reports are to be submitted on a quarterly basis. Subsequently, the supervisory board chair is to inform the entire supervisory board about the internal audit unit's reports; this signifies an expansion of the chairperson's reporting obligations.[12] This provision considerably enhances the flow of information to and within the supervisory board. It also serves to eliminate opaque or "shadow" structures within a credit institution.

As the internal audit unit is highly significant within the supervisory framework, the FMA already issued minimum standards for internal auditing in 2005. These minimum standards (which in legal terms only constitute recommendations) include enforcement measures as well as specific instructions regarding the duties of the internal audit unit.[13]

4 The Austrian Code of Corporate Governance

The Austrian Code of Corporate Governance[14] provides exchange-listed companies in Austria with a framework of rules for corporate management and monitoring. The flexible and voluntary

[10] *In the Austrian implementation of Directive 2007/44/EC, the duties of the audit committee will be adapted in accordance with the provisions of Article 92 paragraph 4a of the Stock Corporation Act.*

[11] *Cf. IG 14 of the CEBS Guidelines.*

[12] *Cf. IG 2 and 14 of the CEBS Guidelines and C Rule 18 of the Austrian Code of Corporate Governance on reporting obligations.*

[13] *http://www.fma.gv.at/cms/site/EN/einzel.html?channel=CH0081*

[14] *http://www.corporate-governance.at*

self-regulation of capital market participants is to build investor confidence and strengthen the Austrian capital market. In addition to causing financial damage to investors, corporate governance scandals can lead to a reluctance to invest capital and thus have a sustained adverse effect on the investment environment.

The code is only applicable where a company voluntarily commits to these corporate governance principles in their current version. However, a declaration of commitment to the Austrian Code of Corporate Governance is a requirement for admission to listing on the Prime Market of the Vienna stock exchange.

The Austrian Code of Corporate Governance is only applied to Austrian credit institutions if they are listed on the stock exchange as a publicly held corporation – as is the case with Erste Bank and Raiffeisen International – and (explicitly) commit to the code. The special rules for banks as discussed in chapter 3 are not affected by the code.

The most recent proposed amendments to the code in 2008 included the compulsory corporate governance report, diversity on the supervisory board, expanded transparency requirements with regard to remuneration systems (individual disclosure of managing directors' remuneration under C Rule 31), and an additional reinforcement of the independence of the supervisory board and its committees.

The code includes three categories of rules:

1. Legal requirement (L): These rules are based on applicable laws, which means that voluntary commitment would be superfluous. The presentation of the Austrian legal situation with regard to corporate governance helps foreign investors quickly obtain an overview of Austrian legislation in this field.
2. Comply or Explain (C): These rules, of which there are approximately 40, serve as a supplement to the legal requirements. With regard to the transparency of management board remuneration as well as the number of supervisory board committees (remuneration and nomination committee), for example, the code imposes stricter requirements than the law. Deviations from best practices must be explained and justified in order to ensure conformity with the code.
3. Recommendation (R): This category comprises non-binding recommendations. Credit institutions are not required to disclose or justify non-compliance with these rules.

5 Comparison of Austrian Legislation with European Legal Standards

A comparison of the current state of Austrian legislation with European standards reveals that the supervisory reform of 2007 brought about significant advances in Austria. The country's transparency regulations are also consistent with international standards. The obvious deficit in the field of internal control was eliminated by increasing the importance of the supervisory board and by expanding internal reporting obligations. The Financial System Stability Assessment published by the International Monetary Fund (IMF) in June 2008 suggests that Austria's application of "fit and proper test" requirements for supervisory board chairpersons be expanded to include smaller credit institutions which do not belong to a specific sector and thus cannot take advantage of sector-specific protection schemes.

Practical Implementation of Corporate Governance and Transparency in Austrian Banks

Credit institutions[1]	Corporate Governance	Transparency
BA-CA	www.bankaustria.at External evaluation, description of criteria for verifying the independence of supervisory board members under „Investor Relations“	Annual report, quarterly results
Erste Bank	www.sparkasse.at Exact description of implementation, evaluation and criteria for verifying the independence of supervisory board members under „Investor Relations“	Annual report, quarterly report, extensive information with regard to the Austrian Disclosure Regulation, financial ratios and current investor information
RZB	No extensive description on the bank‘s website	www.rzb.at, annual report and „Company Info“
BAWAG	www.bawagpsk.com Description and evaluation under „Investor Relations“	Annual report and company information
Hypo Alpe Adria	www.hypo-alpe-adria.com Brief statement of commitment to corporate governance with reference to the bank‘s articles of association	Annual report
Kommunalkredit	No explicit mention on the bank‘s website	www.kommunalkredit.at Annual report, quarterly report
RLB OÖ	No explicit mention on the bank‘s website	www.geschaeftsbericht.at/rlbooe (annual report) and quarterly reports
RLB NÖ-W	No explicit mention on the bank‘s website	www.raiffeisen.at, annual report and current information
Investkredit	www.investkredit.at Statement of commitment to corporate governance	Ratios and annual report
Oberbank	www.oberbank.at Corporate governance statement in annual report	Annual report, newsletter and ad-hoc reports

Source: OeNB.

[1] *Information collected on the Internet as of August 2008.*

The IMF’s assessment also stated that an annual corporate governance statement would be desirable. For exchange-listed credit institutions, this was introduced in the most recent reform (Federal Law Gazette I No. 70/2008) of the Austrian Company Code (UGB). Article 243b of the Company Code now stipulates that all *exchange-listed companies* are required to issue a corporate governance statement each year. In this way, it is possible to provide interested parties – especially shareholders – with essential information on the company’s management and control.

Most of the CEBS recommendations are subsumed under the general provisions of Article 39 of the Banking Act, as the Austrian legislature chose not to specify each individual recommendation in concrete terms. However, written documentation requirements could be described more precisely.

According to IG 19 of the CEBS guidelines (“whistle-blowing”), employees should be provided with a risk-free means of communicating corporate governance concerns within the credit institution. The Austrian legislation does not contain any references to the topic of whistle-blowing, and therefore no internal or external reporting obligation exists in this area. External reporting would imply that employees could report such concerns directly to the supervisory authorities. Due to the influence of Anglo-Saxon legal systems, it appears that companies will have to become increasingly involved in the supervisory authorities’ investigation processes. This topic is surrounded by considerable legal uncertainty, which gen-

erally brings about a situation in which companies and practitioners will often dismiss new and expanded obligations out of hand – which is understandable from their perspective (Kittelberger, 2007). Moreover, external whistleblowing may be subject to certain limits due to obligations under contract law and employment law (Gapp, 2007).

6 Overview of Practical Implementation of Corporate Governance and Transparency in Austria

A detailed examination of the extent to which fundamental corporate governance rules have been implemented by Austria's top banks and of the information disclosed would go far beyond the scope of this article.

In general, an evaluation of the websites showed that Austrian credit institutions attach great importance to corporate governance principles and also comply with transparency requirements. Compared to Credit Suisse, whose website can be considered exemplary with regard to corporate governance, certain banks could improve the placement of this topic on their websites. In some cases, the relevant information could be made more accessible to the public in a more up-to-date and compact form.

7 Conclusions

The reform of financial market supervision in 2007 helped to strengthen internal corporate governance in Austria. Membership in a supervisory board is more than an honorary appointment. The current legislation defines qualitative requirements for supervisory board chairpersons, ensuring that the supervisory board possesses the necessary qualifications and is able to perform (and actually does perform) its monitoring functions effectively in the credit institution. The supervisory authorities, which must ensure high quality in the performance of their duties, also bear responsibility for good corporate governance at credit institutions. Further improvements in corporate governance provisions could involve the remuneration systems for managing directors, with supervisors paying particular attention to risk-related factors of directors' salaries.

As transparency contributes to financial stability, supervisors are required to ensure the legally compliant and timely fulfillment of disclosure obligations. Credit institutions in turn must realize that good corporate governance and appropriate transparency help improve confidence and further enhance a bank's reputation.

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Annex of Tables

Annex of Tables

Cutoff date for data: November 13, 2008

Conventions used in the tables:

x = No data can be indicated for technical reasons.

. . = Data not available at the reporting date.

Revisions of data published in earlier volumes are not indicated.

Discrepancies may arise from rounding.

Table A1

Exchange Rates

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Period average (per EUR 1)							
U.S. dollar	1.24	1.24	1.26	1.37	1.29	1.23	1.33	1.53
Japanese yen	134.40	136.86	146.06	161.25	136.23	142.16	159.61	160.56
Pound sterling	0.68	0.68	0.68	0.68	0.69	0.69	0.67	0.78
Swiss franc	1.54	1.55	1.57	1.64	1.55	1.56	1.63	1.61
Czech koruna	31.90	29.78	28.34	27.75	30.07	28.49	28.15	25.20
Hungarian forint	251.68	248.06	264.20	251.31	247.42	260.69	250.26	253.66
Polish zloty	4.53	4.02	3.89	3.78	4.08	3.89	3.84	3.49
Slovak koruna	40.02	38.59	37.20	33.77	38.60	37.56	34.04	32.23
Slovenian tolar[1]	239.06	239.56	239.60	239.64	239.63	239.57	239.64	239.64

Source: Thomson Financial.

[1] *From January 1, 2007: irrevocable conversion rate against the euro.*

Table A2

Key Interest Rates

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, %							
Euro area	2.00	2.00	2.25	2.75	3.50	4.00	4.00	4.00
U.S.A.	2.00	3.25	4.25	5.25	5.25	5.25	4.25	2.00
Japan	0.002	0.001	0.004	0.027	0.275	0.610	0.46	0.57
United Kingdom	4.75	4.75	4.50	4.50	5.00	5.50	5.50	5.00
Switzerland[1]	0.25–1.25	0.25–1.25	0.50–1.50	1.00–2.00	1.50–2.50	2.00–3.00	2.25–3.25	2.25–3.25
Czech Republic	2.50	1.75	2.00	2.00	2.50	2.75	3.50	3.75
Hungary	9.50	7.00	6.00	6.25	7.50	7.75	7.50	8.50
Poland	6.50	5.00	4.50	4.00	4.00	4.50	5.00	6.00
Slovak Republic	4.00	3.00	3.00	4.00	4.75	4.25	4.25	4.25
Slovenia[2]	4.00	4.00	4.00	3.25	3.50	4.00	4.00	4.00

Source: Eurostat, Thomson Financial, national sources.

[1] *SNB target range for three-month LIBOR.*

[2] *Until January 2003: official interest rate; since February 2003: interest rate for 60-day tolar bills issued by Banka Slovenije; from 2007 onwards: see Euro area.*

Table A3

Short-Term Interest Rates

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Three-month rates, period average, %							
Euro area	2.11	2.19	3.08	4.28	2.13	2.75	3.94	4.67
U.S.A.	1.62	3.57	5.20	5.30	3.06	4.99	5.36	3.01
Japan	0.09	0.09	0.31	0.73	0.09	0.16	0.63	0.85
United Kingdom	4.59	4.70	4.80	5.95	4.85	4.59	5.61	5.79
Switzerland	0.47	0.80	1.51	2.55	0.75	1.25	2.32	2.79
Czech Republic	2.36	2.01	2.30	3.10	2.07	2.10	2.67	4.07
Hungary	11.53	6.72	7.22	7.86	7.86	6.23	8.12	8.36
Poland	6.20	5.29	4.21	4.74	5.97	4.22	4.32	6.12
Slovak Republic	4.68	2.93	4.32	4.34	2.84	3.71	4.34	4.31
Slovenia[1]	4.66	4.03	3.58	4.28	4.05	3.63	3.94	4.67

Source: Thomson Financial.

[1] *From 2007 onwards: see Euro area.*

Table A4

Long-Term Interest Rates

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Ten-year rates, period average, %							
Euro area	4.10	3.41	3.83	4.31	3.52	3.78	4.23	4.26
U.S.A.	5.02	4.54	4.88	4.80	4.22	4.96	4.90	4.47
Japan	1.49	1.37	1.74	1.67	1.34	1.73	1.70	1.50
United Kingdom	4.85	4.39	4.45	4.92	4.59	4.40	4.97	4.78
Switzerland	2.74	2.10	2.52	2.93	2.18	2.54	2.82	3.14
Czech Republic	4.75	3.51	3.78	4.28	3.56	3.70	4.01	4.73
Hungary	8.19	6.60	7.12	6.74	6.90	6.91	6.77	7.95
Poland	6.90	5.22	5.23	5.48	5.50	5.06	5.27	6.02
Slovak Republic	5.03	3.52	4.41	4.49	3.68	4.13	4.35	4.52
Slovenia	4.68	3.81	3.85	4.53	3.91	3.76	4.43	4.51

Source: Eurostat, national sources.

Table A5

Corporate Bond Spreads

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Period average, percentage points							
	Spreads of 7- to 10-year euro area corporate bonds against euro area government bonds of same maturity							
AAA	0.20	0.12	0.18	0.27	0.13	0.16	0.21	0.53
BBB	0.84	0.98	1.24	1.26	0.90	1.22	1.00	2.58
	Spreads of 7- to 10-year U.S. corporate bonds against U.S. government bonds of same maturity							
AAA	0.17	0.14	0.33	0.65	0.11	0.28	0.43	1.53
BBB	0.73	0.76	1.03	1.50	0.71	0.90	1.12	3.10

Source: Merrill Lynch via Thomson Financial.

Table A6

Stock Indices[1]

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Period average							
Euro area: EURO STOXX	251	294	357	416	278	348	416	359
U.S.A.: S&P 500	1,131	1,207	1,311	1,477	1,187	1,282	1,461	1,362
Japan: Nikkei 225	11,181	12,421	16,124	16,984	11,437	16,199	17,521	13,595
Austria: ATX	1,980	2,996	3,938	4,619	2,662	3,947	4,636	4,030
Czech Republic: PX50	828	1,256	1,479	1,776	1,149	1,475	1,737	1,581
Hungary: BUX	11,752	19,018	22,515	26,097	16,874	22,485	24,842	22,783
Poland: WIG	24,109	29,568	43,090	58,995	26,811	39,932	57,515	47,283
Slovak Republic: SAX16	213	437	403	422	422	406	410	450
Slovenia: SBI20	4,571	4,676	5,223	9,822	4,822	4,750	8,087	9,154

Source: Thomson Financial.

[1] *EURO STOXX: December 31, 1991 = 100, S&P 500: November 21, 1996 = 100, Nikkei 225: April 3, 1950 = 100, ATX: January 2, 1991 = 1,000, PX50: April 6, 1994 = 1,000, BUX: January 2, 1991 = 1,000, WIG: April 16, 1991 = 1,000, SAX16: September 14, 1993 = 100, SBI20: December 13–31, 1993 = 1,000.*

Table A7

Gross Domestic Product

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Annual change in %, period average							
Euro area	2.1	1.7	2.9	2.6	1.6	2.9	2.9	1.8
U.S.A.	3.6	2.9	2.8	2.0	3.1	3.2	1.6	2.3
Japan	2.7	1.9	2.4	2.1	1.4	2.6	2.4	1.0
Austria	2.5	2.9	3.4	3.1	3.3	3.4	3.3	2.4
Czech Republic	4.5	6.3	6.8	6.0	7.0	6.9	6.6	4.9
Hungary	4.8	4.0	4.1	1.1	3.7	4.1	2.0	1.9
Poland	5.3	3.6	6.2	6.6	2.8	5.6	6.9	6.2
Slovak Republic	5.2	6.5	8.5	10.4	4.3	8.5	8.8	8.2
Slovenia	4.3	4.3	5.9	6.8	5.4	5.3	6.6	5.5

Source: Eurostat, national sources.

Table A8

Current Account

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	% of GDP, cumulative							
Euro area	0.9	0.1	−0.2	0.3	−0.3	−0.5	0.1	−1.0
U.S.A.	−5.5	−6.1	−6.2	−5.3	−6.0	−6.2	−5.7	−5.1
Japan	3.7	3.6	3.9	4.8	3.5	3.8	4.9	. .
Austria	2.4	3.0	3.5	4.7	2.1	2.8	3.9	4.6
Czech Republic	−5.5	−2.3	−3.1	−2.3	−0.2	−1.6	−0.8	−1.0
Hungary	−8.4	−6.8	−6.5	−5.0	−7.4	−8.4	−7.1	−6.8
Poland	−4.4	−1.6	−3.1	−3.7	−0.8	−2.4	−4.1	−5.5
Slovak Republic	−6.6	−8.5	−7.7	−5.0	−7.0	−6.7	−3.8	−6.6
Slovenia	−2.6	−2.0	−2.8	−4.7	−0.8	−0.6	−3.0	−5.6

Source: Eurostat, European Commission, Thomson Financial, national sources.

Note: Due to seasonal fluctuations, the comparability of half-year figures with yearly figures is limited. The half-year figures for the U.S.A. are based on seasonally adjusted nominal GDP data.

Table A9

Inflation

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Annual change in %, period average							
Euro area	2.1	2.2	2.2	2.1	2.1	2.4	1.9	3.5
U.S.A.	2.7	3.4	3.2	2.8	3.0	3.8	2.5	4.2
Japan	0.0	−0.3	0.3	0.0	−0.2	0.0	−0.1	1.2
Austria	2.0	2.1	1.7	2.2	2.2	1.7	1.8	3.5
Czech Republic	2.6	1.6	2.1	3.0	1.3	2.4	2.2	7.1
Hungary	6.8	3.5	4.0	7.9	3.6	2.5	8.7	6.9
Poland	3.6	2.2	1.3	2.6	2.9	1.2	2.5	2.9
Slovak Republic	7.5	2.8	4.3	1.9	2.7	4.4	1.9	3.7
Slovenia	3.7	2.5	2.5	3.8	2.5	2.7	2.9	6.4

Source: Eurostat.

The Real Economy in Austria

Table A10

Financial Investment of Households

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Transactions, EUR million							
Currency and deposits[1]	6,061	5,431	7,322	12,828	3,255	2,757	7,225	8,998
Securities (other than shares)[2]	2,490	1,520	1,485	3,755	870	844	1,907	2,480
Shares (other than mutual fund shares)	1,476	2,677	3,036	284	2,015	2,581	−447	583
Mutual fund shares	2,883	3,761	2,078	−422	1,536	1,698	611	−1,685
Insurance technical reserves	4,726	5,679	5,304	3,426	3,244	2,572	2,293	2,007
Total financial investment	17,636	19,068	19,225	19,871	10,920	10,452	11,589	12,383

Source: OeNB.

[1] *Including loans and other assets.*
[2] *Including financial derivatives.*
[3] *Preliminary data.*

Table A11

Household Income, Savings and Credit Demand

	2005	2006	2007	2008
	Year			
	Year-end, EUR billion			
Net disposable income	147.5	155.4	162.2	..
Savings	14.6	16.9	19.0	..
Saving ratio in %[1]	9.8	10.8	11.7	..
MFI loans to households	111.27	115.48	123.24	..

Source: Statistics Austria (national accounts broken down by sectors), OeNB (financial accounts).

[1] *Saving ratio = savings / (disposable income + increase in accrued occupational pension benefits).*

Table A12

Financing of Nonfinancial Corporations

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	Transactions, EUR million							
Securities (other than shares)	2,908	4,253	2,704	4,429	1,062	1,147	1,452	924
Loans	−1,170	6,652	6,687	13,155	2,733	2,113	7,498	7,512
Shares and other equity[2]	5,246	60,647	9,043	15,975	57,731	6,792	9,349	3,637
Other accounts payable	590	603	728	56	1,306	559	377	1,536
Total debt	7,574	72,155	19,162	33,615	62,832	10,611	18,676	13,609

Source: OeNB.

[1] *Preliminary data.*
[2] *Including other equity of domestic SPE held by nonresidents (data are included from 2005 onwards).*

Table A13

Insolvency Indicators

	2004	2005	2006	2007	2005	2006	2007	2008
	Year				1st half			
	EUR million							
Default liabilities	2,540	2,426	2,569	2,441	1,034	1,101	1,151	1,109
	Number							
Defaults	2,972	3,203	3,084	3,023	1,552	1,547	1,548	1,619

Source: Kreditschutzverband von 1870.

Table A14

Selected Financial Ratios of the Manufacturing Sector

	2004	2005	2006	2007
	Median, %			
Self-financing and investment ratios				
Cash flow, as a percentage of turnover	8.05	7.55	7.55	..
Investment ratio[1]	1.88	0.99	2.11	..
Reinvestment ratio[2]	59.09	45.00	79.10	..
Financial structure ratios				
Equity ratio	15.43	22.87	20.47	..
Risk-weighted capital ratio	20.99	29.43	27.07	..
Bank liability ratio	39.96	32.01	33.29	..
Government debt ratio	9.11	8.64	9.17	..

Source: OeNB.

[1] *Investments x 100 / net turnover.*
[2] *Investments x 100 / credit write-offs.*

Financial Intermediaries in Austria[1]

Table A15

Total Assets and Off-Balance-Sheet Operations

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Total assets on an unconsolidated basis	652,758	697,505	725,761	765,258	797,758	859,343	899,542	972,244
of which: total domestic assets	452,306	463,815	479,817	493,966	504,237	518,713	548,515	581,953
total foreign assets	200,452	233,690	245,943	271,292	293,521	340,630	351,027	390,291
Interest rate contracts	1,241,189	1,266,274	1,247,825	1,278,429	1,360,613	1,450,249	1,689,633	1,513,399
Foreign exchange derivatives	216,284	245,677	240,564	264,876	279,686	369,009	347,248	393,964
Other derivatives	8,490	15,916	17,731	21,751	20,103	21,067	19,381	22,075
Derivatives total	1,465,963	1,527,867	1,506,120	1,565,056	1,660,402	1,840,325	2,056,262	1,929,438
Total assets on a consolidated basis	732,780	789,045	847,627	874,322	927,751	1,037,390	1,072,977	1,161,704

Source: OeNB.

Note: Data on off-balance-sheet operations refer to nominal values.

Table A16

Profitability on an Unconsolidated Basis

	2005	2006	2007	2008	2004	2005	2006	2007
	1st half				Year			
	End of period, EUR million							
Net interest income	3,547	3,562	3,568	3,978	7,131	7,094	7,170	7,399
Income from securities and participating interests	1,125	1,198	1,387	1,470	2,076	2,700	2,878	3,521
Net fee-based income	1,903	2,169	2,453	2,157	3,387	3,941	4,301	4,710
Net profit/loss on financial operations	333	446	361	−55	607	642	688	290
Other operating income	621	686	758	826	1,255	1,333	1,581	1,593
Operating income	7,530	8,062	8,527	8,376	14,457	15,710	16,618	17,512
Staff costs	2,418	2,624	2,654	2,870	4,859	5,036	5,451	5,468
Other administrative expenses	1,628	1,706	1,800	1,880	3,108	3,332	3,516	3,703
Other operating expenses	776	838	843	757	1,748	1,694	1,828	1,678
Total operating expenses	4,822	5,168	5,297	5,507	9,715	10,063	10,795	10,849
Operating profit/loss	2,708	2,894	3,230	2,869	4,742	5,647	5,823	6,663
Net risk provisions from credit business[1]	1,610	1,637	1,257	1,867	2,094	2,014	1,845	2,012
Net risk provisions from securities business[1]	−101	−723	−404	−181	−1,154	−408	−2,875	−430
Annual surplus[1]	2,887	3,931	4,702	3,766	2,981	3,879	3,958	4,787
Return on assets[1, 2]	0.39	0.49	0.51	0.36	0.46	0.53	0.50	0.53
Return on equity (tier 1 capital)[1, 2]	8.0	8.6	7.4	6.0	9.3	11.1	9.5	8.2
Interest income to gross income (%)	47	44	42	48	49	45	43	42
Operating expenses to gross income (%)	64	64	62	66	67	64	65	62

Source: OeNB.

[1] *Data referring to the first half of the year are expected year-end values.*
[2] *Annual surplus in % of total assets and tier 1 capital, respectively.*

[1] *Since 2007, the International Monetary Fund (IMF) has published Financial Soundness Indicators (FSI) for Austria (see also www.imf.org). The tables below have therefore been expanded to include FSI as computed by the OeNB for banks operating in Austria.*

Table A17

Profitability on a Consolidated Basis

	2005	2006	2007	2008	2004	2005	2006	2007
	1st half				Year			
	End of period, EUR million							
Operating income	10,259	11,713	13,929	16,811	19,303	21,153	23,993	28,093
Operating expenses	6,490	7,225	8,184	8,054	12,473	13,389	14,758	17,041
Operating profit/loss	3,769	4,489	5,745	5,617	6,830	7,765	9,235	11,052
Result before minority interests	2,471	3,712	4,087	3,964	4,408	5,341	8,696	8,015
Return on assets[1]	0.59	0.83	0.83	0.62	0.56	0.63	0.94	0.85
Return on equity (tier 1 capital)[1]	14.5	17.8	16.7	14.1	13.3	14.7	18.7	18.7
Interest margin to gross income (%)	63	60	61	54	64	62	62	64
Operating expenses to gross income (%)	63	62	59	48	65	63	62	61

Source: OeNB.

[1] Result before minority interests in % of total assets and tier 1 capital, respectively.

Note: Due to changes in reporting consolidated figures as of 2008 are only little comparable with earlier figures.

Table A18

Sectoral Distribution of Loans

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Nonfinancial corporations	109,924	111,334	108,944	114,171	116,078	118,012	121,992	127,713
of which: foreign currency-denominated loans	16,094	16,109	14,604	14,006	12,586	10,501	9,884	10,667
Households[1]	97,130	100,375	107,561	109,255	111,404	114,998	117,601	119,911
of which: foreign currency-denominated loans	28,461	30,401	33,316	34,395	34,266	33,383	32,279	34,758
General government	31,238	30,192	29,141	29,856	28,662	27,296	26,303	26,798
of which: foreign currency-denominated loans	1,688	2,074	2,160	2,159	1,862	1,489	1,603	1,736
Other financial intermediaries	14,510	15,131	19,365	20,523	22,001	20,758	21,646	22,032
of which: foreign currency-denominated loans	1,667	2,030	3,216	3,491	3,353	3,142	2,930	3,079
Foreign nonbanks	56,434	66,163	69,273	74,014	80,985	88,217	103,983	113,057
of which: foreign currency-denominated loans	22,431	28,140	28,534	29,280	31,378	33,961	38,027	39,182
Nonbanks total	309,235	323,195	334,283	347,820	359,129	369,282	391,524	409,511
of which: foreign currency-denominated loans	70,341	78,754	81,830	83,331	83,445	82,476	84,723	89,422
Banks	182,416	199,908	201,117	218,833	230,320	264,854	263,344	313,969
of which: foreign currency-denominated loans	49,569	58,368	56,915	62,313	62,467	70,077	69,652	84,560

Source: OeNB.

[1] Sector "Households" consists here of the sectors "Households" and "Nonprofit institutions serving households".

Note: Due to breaks in the time series growth rates vary from the ones indicated in the text, which have been adjusted.

Table A19

Foreign Currency-Denominated Claims on Domestic Non-MFIs

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, % of total foreign currency-denominated claims on domestic non-MFIs[1]							
Swiss franc	90.1	89.3	89.0	89.3	90.8	89.0	88.7	88.8
Japanese yen	5.6	5.2	3.9	2.8	2.8	2.8	3.6	3.3
U.S. dollar	3.6	4.8	6.3	6.8	5.5	5.4	5.1	6.2
Other foreign currencies	0.7	0.6	0.8	1.1	0.9	2.8	2.6	1.8

Source: OeNB, ECB.

[1] *The indicated figures refer to claims of monetary financial institutions (MFIs, ESA definition) on domestic 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. Due to rounding, figures do not add up to 100% for every year.*

Table A20

Loan Quality

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, % of claims							
Specific loan loss provisions for loans to nonbanks	3.3	3.2	3.1	3.1	2.9	2.7	2.4	2.3
Nonperforming loans	2.7	x	2.6	x	2.1	x	1.7	x
	End of period, % of tier 1 capital							
Nonperforming loans	53.1	x	52.6	x	39.0	x	25.5	x

Source: OeNB.

Table A21

Market Risk[1]

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million and %, respectively							
Interest rate risk								
Basel ratio for interest rate risk, %[2]	6.1	6.4	6.6	6.3	5.6	5.2	4.5	4.5
Capital requirement for the position risk of interest rate instruments in the trading book	609.8	810.3	703.0	792.6	737.3	980.0	1.082.6	856.9
Exchange rate risk								
Capital requirement for open foreign exchange positions	52.9	97.3	93.3	101.8	75.2	89.1	74.1	99.7
Equity price risk								
Capital requirement for the position risk of equities in the trading book	43.4	71.1	95.9	94.0	101.0	211.6	180.6	204.8

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. As long as reporting is according to Basel II mutual funds and nonlinear option risiks are included in the data according to their risk categories.*

[2] *Average of the Basel ratio for interest rate risk (loss of present value following a parallel yield curve shift of all currencies by 200 basis points in relation to regulatory capital) weighted by total assets of all Austrian credit institutions excluding banks that operate branches in Austria under freedom of establishment. For banks with a large securities trading book, interest rate instruments of the trading book are not included in the calculation.*

Table A22

Liquidity Risk

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, %							
Short-term loans to short-term liabilities	×	69.7	65.4	67.4	66.2	70.1	64.0	69.8
Short-term loans and other liquid assets to short-term liabilities	×	120.8	115.8	117.7	115.0	118.7	109.9	112.7
Liquid resources of the first degree: 5% quantile of the ratio between available and required liquidity of degree[1]	171.6	171.8	178.6	173.0	152.4	134.4	140.0	140.2
Liquid resources of the second degree: 5% quantile of the ratio between available and required liquidity of degree[2]	121.7	121.7	118.5	118.7	111.5	114.1	110.2	113.1

Source: OeNB.

[1] *Short-term loans and short-term liabilities (up to 3 months against banks and non-banks). Liquid assts (quoted stocks and bonds, government bonds and eligible collateral, cash and liquidity reserves at apex institutions). 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 liquid resources of the first degree (cash ratio) and of 20% for liquid resources of the second degree (quick ratio). The 5% quantile indicates the ratio between available and required liquidity of liquidity surpassed by 95% of banks on the respective reporting date.*

Table A23

Solvency

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, eligible capital and tier 1 capital, respectively, as a percentage of risk-weighted assets							
Consolidated capital adequacy ratio	11.9	12.0	11.3	12.0	11.3	12.2	11.6	10.8
Consolidated tier 1 capital ratio	8.0	8.3	7.8	8.5	7.8	8.5	8.1	7.4

Source: OeNB.

Note: Owing to the transition to Basel II, the method of calculation of the capital ratio and the tier 1 capital ratio used from this issue of the Financial Stability Report 16 on differs from the method used previously. The denominator of both ratios is given by the sum of all regulatory capital requirements multiplied by the factor 12.5. The numerator of the capital ratio is given by tier 1 and tier 2 capital less deduction items (eligible own funds) plus the part of tier 3 capital not exceeding the capital requirement for position risk. The numerator of the tier 1 capital ratio is given by tier 1 capital less deduction items (eligible tier 1 capital). The sum of all capital requirements consists of the capital requirements for credit risk, position risk, settlement risk, operational risk and the transition to Basel II as well as the other capital requirements.

Table A24

Assets Held by Austrian Insurance Companies[1]

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Cash, overnight and other deposits at domestic banks	2,516	2,472	2,570	3,218	2,359	1,867	2,257	4,209
Domestic debt securities	8,909	9,238	9,309	9,840	10,237	10,606	10,795	11,166
of which: domestic banks	7,068	7,519	7,647	8,021	8,415	8,642	8,710	9,005
Equity securities and other domestic securities	17,359	19,387	21,208	21,754	23,575	23,699	24,488	22,461
Loans	6,504	5,933	5,724	4,701	4,305	3,663	3,410	3,330
of which: domestic banks	161	206	366	407	468	502	573	652
Domestic equity interests	3,906	3,928	3,965	4,315	4,448	4,590	5,090	5,613
Real estate	3,361	3,340	3,288	3,118	3,118	3,046	3,038	3,016
Foreign assets	20,691	22,964	25,058	26,439	28,703	31,482	33,145	34,856
of which: debt securities	15,648	17,002	18,230	19,333	20,360	21,161	22,150	24,228
Custody account claims on deposits on reinsurers	2,260	. .	2,163	. .	2,136	. .	2,142	. .
Other assets	3,594	4,361	4,048	5,199	4,192	4,936	4,252	5,201
Total assets	69,100	73,433	77,333	80,339	83,073	85,625	88,617	91,529

Source: OeNB.

[1] *Semiannual data exclusive of reinsurance transactions, based on quarterly returns.*

Table A25

Assets Held by Austrian Mutual Funds

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Domestic securities	37,341	43,052	47,032	46,422	49,593	49,882	47,304	42,087
of which: debt securities	19,025	20,545	20,350	18,302	17,632	15,892	14,938	13,774
equity securities	18,316	22,507	26,682	28,120	31,961	33,990	32,366	28,313
Foreign securities	80,505	91,473	100,367	102,876	109,306	112,816	105,232	92,872
of which: debt securities	56,821	64,635	68,054	69,482	70,280	71,373	66,473	61,809
equity securities	23,684	26,838	32,313	33,394	39,026	41,443	38,759	31,063
Other assets	7,441	7,984	9,286	10,232	9,961	11,622	13,110	13,956
Total assets	125,287	142,509	156,685	159,530	168,860	174,320	165,646	148,915
of which: foreign currency	24,591	28,085	32,694	32,699	36,797	38,078	35,047	28,830

Source: OeNB.

Table A26

Assets Held by Austrian Pension Funds

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Domestic securities	9,179	9,744	10,112	10,074	10,742	10,901	10,773	10,650
of which: federal treasury bills and notes	0	0	0	0	0	0	0	0
debt securities	108	96	98	89	116	147	137	124
mutual fund shares	9,019	9,579	9,949	9,921	10,589	10,722	10,603	10,499
other securities	52	69	65	64	37	32	33	27
Foreign securities	525	727	1,006	1,010	1,224	1,426	1,473	1,085
of which: debt securities	27	69	74	81	73	91	140	96
mutual fund shares	469	645	906	903	1,113	1,299	1,321	973
other securities	29	13	26	26	38	36	12	16
Deposits	125	95	113	150	173	270	282	449
Loans	83	94	94	99	93	124	158	157
Other assets	170	196	224	220	264	249	238	270
Total assets	10,082	10,856	11,549	11,553	12,496	12,970	12,924	12,611
of which: foreign currency	249	272	312	327	555	601	620	462

Source: OeNB.

Table A27

Assets Held by Austrian Severance Funds

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	End of period, EUR million							
Total direct investment	92.3	129.4	158.7	228.7	295.6	415.5	598.3	812.7
of which: euro-denominated	89.2	122.5	153.8	223.3	288.4	390.5	579.6	796.9
foreign currency-denominated	×	×	×	×	×	×	×	×
accrued income claims from direct investment	×	2.0	3.2	2.4	4.2	4.6	8.6	11.4
Total indirect investment	269.6	382.3	537.8	658.1	832.5	949.3	1,023.8	1,039.6
of which: total of euro-denominated investment in mutual fund shares	266.6	370.4	490.4	608.1	781.4	877	963.8	983.3
total of foreign currency-denominated investment in mutual fund shares	3.2	11.9	47.4	50.0	51.1	72.3	60.0	56.2
Total assets assigned to investment groups	362.1	511.7	696.5	886.5	1,128.1	1,364.8	1,622.1	1,852.3
of which: foreign currency-denominated	4.9	16.9	49.1	52.4	54.2	92.7	70.8	60.7

Source: OeNB.

Note: Due to special balance sheet operations total assets assigned to investment groups deviate from the sum of total indirect investments.

Table A28

Transactions and System Disturbances in Payment and Securities Settlement Systems

	2004	2005		2006		2007		2008
	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30	Dec. 31	June 30
	Number of transactions in million, value of transactions in EUR billion							
HOAM.AT								
Number	×	×	×	×	×	×	×	1.6
Value	×	×	×	×	×	×	×	2,360.20
System disturbances	×	×	×	×	×	×	×	1
Securities settlement systems								
Number	1.0	0.8	1.9	1.7	3.0	1.8	1.1	0.97
Value	187.9	157.3	309.8	267.1	448.6	330	269.8	255.4
System disturbances	0	0	0	0	0	0	0	0
Retail payment systems								
Number	377.9	197.4	412.3	216.5	448.5	237.8	253.9	255.0
Value	31.5	15.5	31.1	16.9	35.3	18.3	18.6	20.0
System disturbances	17	12	41	25	58	3	17	0
Participation in international payment systems								
Number	8.8	5.9	12.0	7.5	16.8	10.2	11	12.3
Value	1,101.1	562.0	1,127.4	702.2	1,468.8	868.9	1,077.5	997.2
System disturbances	15	5	8	1	4	1	0	0

Source: OeNB.

Note: ARTIS/TARGET has been replaced by HOAM.AT on 19th November 2007.

Notes

Abbreviations

ARTIS	Austrian Real Time Interbank Settlement (the Austrian real time gross settlement system)
A-SIT	Secure Information Technology Center – Austria
ASVG	Allgemeines Sozialversicherungsgesetz – General Social Security Act
A-Trust	A-Trust Gesellschaft für Sicherheitssysteme im elektronischen Datenverkehr GmbH (accredited certification service provider)
ATX	Austrian Traded Index
BCBS	Basel Committee on Banking Supervision (BIS)
BIC	Bank Identifier Code
BIS	Bank for International Settlements
BOP	balance of payments
BSC	Banking Supervision Committee (ESCB)
CACs	collective action clauses
CEBS	Committee of European Banking Supervisors (EU)
CEE	Central and Eastern Europe
CEEC(s)	Central and Eastern European country (countries)
CESEE	Central, Eastern and Southeastern Europe
CESR	Committee of European Securities Regulators
CIS	Commonwealth of Independent States
CPI	consumer price index
EBA	Euro Banking Association
EBRD	European Bank for Reconstruction and Development
EC	European Community
ECB	European Central Bank
Ecofin	Economic and Financial Affairs Council (EU)
EEA	European Economic Area
EFC	Economic and Financial Committee (EU)
EIB	European Investment Bank
EMS	European Monetary System
EMU	Economic and Monetary Union
EONIA	Euro OverNight Index Average
ERM II	exchange rate mechanism II (EU)
ERP	European Recovery Program
ESA	European System of Accounts
ESAF	Enhanced Structural Adjustment Facility (IMF)
ESCB	European System of Central Banks
ESRI	Economic and Social Research Institute, Dublin
EU	European Union
EURIBOR	Euro Interbank Offered Rate
Eurostat	Statistical Office of the European Communities
FATF	Financial Action Task Force on Money Laundering
FDI	foreign direct investment
Fed	Federal Reserve System (U.S.A.)
FMA	Austrian Financial Market Authority
FOMC	Federal Open Market Committee (U.S.A.)
FSAP	Financial Sector Assessment Program (IMF/World Bank)
FWF	Fonds zur Förderung der wissenschaftlichen Forschung – Austrian Science Fund
GAB	General Arrangements to Borrow
GATS	General Agreement on Trade in Services
GDP	gross domestic product
GNP	gross national product
GSA	GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination GmbH (Austrian cash logistics company)
HICP	Harmonised Index of Consumer Prices
HIPC	Heavily Indebted Poor Countries
IBAN	International Bank Account Number
IBRD	International Bank for Reconstruction and Development
ICT	information and communication technology
IDB	Inter-American Development Bank
IFES	Institut für empirische Sozialforschung GesmbH – Institute for Empirical Social Research, Vienna
ifo	ifo Institute for Economic Research, Munich
IHS	Institut für Höhere Studien und Wissenschaftliche Forschung – Institute for Advanced Studies, Vienna
IIF	Institute of International Finance
IIP	international investment position
IMF	International Monetary Fund
ISO	International Organization for Standardization
IWI	Industriewissenschaftliches Institut – Austrian Institute for Industrial Research, Vienna
JVI	Joint Vienna Institute
LIBOR	London Interbank Offered Rate
M3	broad monetary aggregate M3
MFI	monetary financial institution
MRO	main refinancing operation
MoU	memorandum of understanding
NACE	Statistical Classification of Economic Activities in the European Community
NCB	national central bank
OeBS	Oesterreichische Banknoten- und Sicherheitsdruck GmbH (Austrian banknote and security printing works)
OECD	Organisation for Economic Co-operation and Development
OeKB	Oesterreichische Kontrollbank (Austria's main financial and information service provider for the export industry and the capital market)
OeNB	Oesterreichische Nationalbank (Austria's central bank)
OPEC	Organization of the Petroleum Exporting Countries
ÖBFA	Österreichische Bundesfinanzierungsagentur – Austrian Federal Financing Agency
ÖNACE	Austrian Statistical Classification of Economic Activities
POS	point of sale
PRGF	Poverty Reduction and Growth Facility (IMF)
R&D	Research & Development
RTGS	Real-Time Gross Settlement
SDR	Special Drawing Right (IMF)
SDRM	Sovereign Debt Restructuring Mechanism (IMF)
SEPA	Single Euro Payments Area
SPF	Survey of Professional Forecasters
STEP2	Straight-Through Euro Processing system provided by the Euro Banking Association
STUZZA	Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr G.m.b.H. – Austrian Society for Payment System Research and Cooperation
S.W.I.F.T.	Society for Worldwide Interbank Financial Telecommunication
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer
Treaty	Treaty establishing the European Community
UCIT(s)	undertaking(s) for collective investment in transferable securities
ULC	unit labor cost
UN	United Nations Organization
UNCTAD	United Nations Conference on Trade and Development
VaR	value at risk
WBI	Wiener Börse Index (all-share index of the Vienna stock exchange)
WEF	World Economic Forum
WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
wiiw	Wiener Institut für internationale Wirtschaftsvergleiche – The Vienna Institute for International Economic Studies
WKÖ	Wirtschaftskammer Österreich – Austrian Federal Economic Chamber
WTO	World Trade Organization

Legend

x = No data can be indicated for technical reasons

.. = Data not available at the reporting date

0 = The numerical value is zero or smaller than half of the unit indicated

Discrepancies may arise from rounding.

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Rating Models and Validation

www.oenb.at/en/img/rating_models_tcm16-22933.pdf

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www.oenb.at/en/img/lf_securit_engl_tcm16-23501.pdf and

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Credit Approval Process and Credit Risk Management

www.oenb.at/en/img/credit_approval_process_tcm16-23748.pdf

Credit Risk Models and Credit Derivatives

(By Gaal, A. and M. Plank. 1998. In: Focus on Austria 4/1998, OeNB.)
www.oenb.at/en/img/credit_risk_tcm16-11201.pdf

Legal Framework in Croatia

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Two volumes of this six-volume series of guidelines centering on the various facets of market risk provide information on how the Oesterreichische Nationalbank appraises value-at-risk models and on how it audits the standardized approach. The remaining four volumes discuss in depth stress testing for securities portfolios, the calculation of regulatory capital requirements to cover option risks, the general interest rate risk of debt instruments, and other risks associated with the trading book, including default and settlement risk.

General Market Risk of Debt Instruments (2nd revised and extended edition) (Volume 1)

www.oenb.at/en/img/band1ev40_tcm16-20471.pdf

Standardized Approach Audits (Volume 2)

www.oenb.at/en/img/band2ev40_tcm16-20472.pdf

Evaluation of Value-at-Risk Models (Volume 3)

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Provisions for Option Risks (Volume 4)

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Other Risks Associated with the Trading Book (Volume 6)

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Guidelines on Operational Risk Management and Bank-Wide Risk Management

Guidelines on Operational Risk Management

www.oenb.at/en/img/operational_risk_screen_tcm16-49652.pdf

These guidelines describe the features of operational risk, evaluate the significance of this risk category for banks and securities firms, and provide an overview of methods and measures adopted to control operational risks. The guidelines explore the major risk areas and risk control/limitation measures in line with the four causes of operational risk (people, systems, processes, external events) and also assess associated legal risks. Furthermore, the guidelines offer an overview of the methods used to calculate (quantitative and qualitative) capital requirements.

Guidelines on Bank-Wide Risk Management

www.oenb.at/en/img/lf_icaap_englisch_gesamt___tcm16-39190.pdf

The Guidelines on Bank-Wide Risk Management (Internal Capital Adequacy Assessment Process) give a detailed overview of assessment procedures in all major

risk categories. They provide in-depth information on the different types of capital and their suitability for risk cover. Moreover, the guidelines present quantitative methods and procedures to determine the risk-bearing-capacity of a credit institution. A separate section highlights the significance of having a limit system in place that is adequate in a given risk scenario and underscores the need for efficient internal control mechanisms.

Other Publications

Structured Products Handbook

www.oenb.at/en/img/phb_internet_tcm16-11173.pdf

The first part of the „Structured Products Handbook" deals with structured bonds whose payoff properties depend on interest rate movements, and the following two parts focus on products whose payoff characteristics are shaped by equity prices and foreign exchange rates.

New Quantitative Models of Banking Supervision

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Off-Site Analysis Framework of Austrian Banking Supervision – Austria Banking Business Analysis

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